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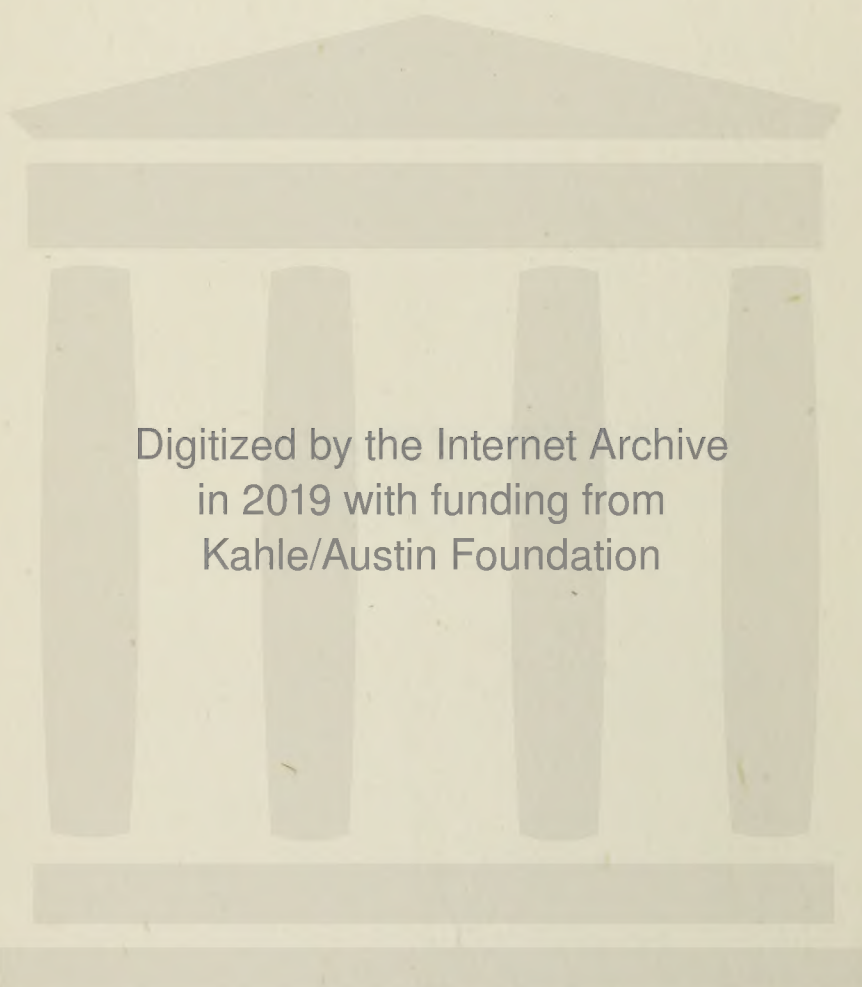
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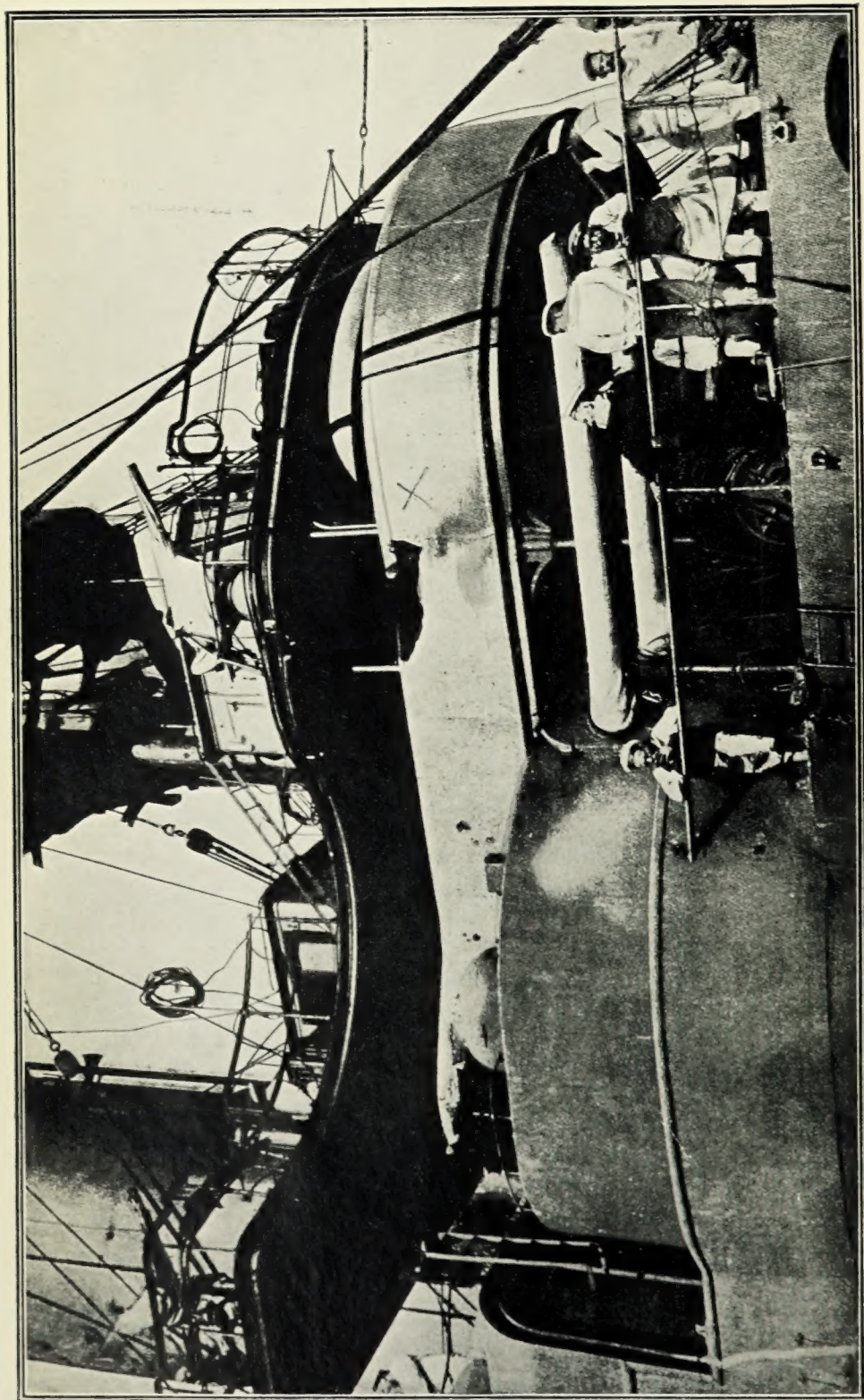
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Robert L. Shaw

BATTLESHIPS
IN ACTION



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Frontispiece

BRIDGE OF THE RUSSIAN BATTLESHIP "TZESAREVITCH"

[see p. 210

The illustration shows the hit which killed Admiral Vitgeft in the battle of Aug. 10, 1904. It is marked with a cross, and splinters of the shell which caused it swept the bridge. A second shell burst against the conning tower roof (seen to the right) and jammed the helm.

BATTLESHIPS IN ACTION

H. W. WILSON

Author of "Ironclads in Action,"

"The Downfall of Spain"

Sometime Scholar of Trinity College, Oxford

*Illustrated with over 100 half-tone reproductions,
battle-plans, and diagrams*

Vol. I

TORONTO
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To
VISCOUNT ROTHERMERE
FOR MANY ACTS OF FRIENDSHIP
AND TO THE DEAR MEMORY OF HIS TWO SONS
WHO
FOR KING AND COUNTRY
GAVE THEIR LIVES,
HAROLD ALFRED VYVYAN HARMSWORTH
MORTALLY WOUNDED AT BOURLON WOOD,
AND
VERE SIDNEY TUDOR HARMSWORTH
KILLED AT THE STORMING OF
BEAUCOURT

PREFACE

THE present work covers the history of naval war from the date when armour was introduced to the close of the world struggle with Germany. Its object is to bring that history within the pages of two volumes of moderate size. It is the first English work to utilise and apply the mass of important information about the Battle of Jutland contained in the latest volumes of the German Official History. These were not available when the valuable third volume of the British Official History was written, and they throw a somewhat startling light on certain episodes in the battle. They show, for example, that Admiral Scheer was for a comparatively long time unaware that he had the whole Grand Fleet upon him.

Again, Admiral Michelsen's recently published work on the German submarines has added greatly to our knowledge in this country of the capacity and limitations of these dangerous vessels. Captain Weniger's criticism of the Dardanelles operations, which appeared last year in Germany, has supplied much fresh evidence and revealed some of the causes of the Allied failure in that great undertaking.

I have received much information from officers in the British Navy both during the Great War and since its close, for which (as almost without exception my informants desire their communications to be treated as confidential) I make the most sincere and grateful acknowledgment to them. During the war I paid many visits to the Grand Fleet and its various detachments; indeed, I was with the last party that visited it at Scapa on the very eve of Jutland, and shall not easily forget taking leave of the officers of the *Invincible*, whom we were never to see again. Before the war I was often privileged to be present at naval manœuvres with the British squadrons, and I watched the slow transformation of our Navy between 1896 and 1914 at the very closest quarters. It so happened also that at various times I enjoyed the friendship of Lord Fisher, Lord Charles Beresford, Sir Robert Arbuthnot, and Sir Percy Scott, men who differed in their views, but one and all were devoted to their country and filled

PREFACE

with enthusiasm for their profession. I had further an acquaintance with Sir A. K. Wilson. Thus I heard opinions which were based on wide experience.

To economise space, whenever I have to deal with men who have become historic figures, I have dropped titles, and spoken not for instance of "Earl Beatty," but of "Beatty", and not of "Admiral von Scheer", but of "Scheer". I trust this will not be regarded as any sign of discourtesy, when it is really a tribute to the renown which such leaders enjoy.

No emphasis has been laid upon the purely human side of naval war, because a generation which has passed through fire and flood and faced death in a hundred ways needs no incessant reminder of the background of pain and suffering, or of the agonising sights and sounds of battle. Semenoff's description of his experiences in the Suvaroff at Tshushima¹ is from this point of view one of the best ever written, as those who were under violent fire in the battle cruisers at Jutland agree. Mr. Filson Young's account of the Battle of the Dogger Bank is equally accurate. The greatness of such leadership as Lord Beatty's can only be really judged by readers who understand in what conditions his decisions were made on that exposed upper bridge of the *Lion* where he set such an example as Nelson in the face of extraordinary danger.

"History," it has been said, "is something more than record and something less than praise; it demands selection and judgment, judging events as if they were far in the past, and men as if they were already dead; it implies censure as a warning lest those who read may be misled."² But where mistakes are pointed out, it should be remembered that the historian has generally knowledge which the leader at the moment of action did not possess, and that the historian is not being fired at, or about to be fired at. For the benefit of after generations it is vital for an honest writer to state where he thinks wrong decisions were taken, nor does it imply (as some have professed) any assertion of censoriousness to infallibility on the writer's part. Even the greatest leaders in war do not always intuitively grasp the exact circumstances and act accordingly.³ Napoleon derided the idea that impeccable generals and admirals existed.

Owing to the vast scale of operations in the Great War it has not been possible to give in detail any but the most

¹ On land the Master of Belhaven gives a striking psychological analysis.

² Sir A. Macphail, *The [Canadian] Medical Forces*, p. 8.

³ e.g. Napoleon in the campaign of 1812 and 1813 and Nelson in the attacks on Boulogne and Santa Cruz.

PREFACE

important actions. I have, however, stated the sources, and any reader who wants fuller particulars can find them there—in the German, French, Italian and English authorities. The reports, journals, logs and despatches on which the official histories are based are as yet, with some rare exceptions, inaccessible to the historian or to the public; but it may be hoped that sooner or later the splendid example of the United States Navy Department in issuing the Official Records of the Civil War, will be followed here.

Included in the present book is the period covered in my earlier works, *Ironclads in Action* and the *Downfall of Spain*, but everything that appeared in those books has been re-examined critically in the light of fresh evidence, and almost every page has been completely rewritten. A high degree of compression has been employed, yet it will be found, I think, that all the really important points are adequately dealt with.

I have to thank Mr. W. G. Perrin, O.B.E., for assistance in a hundred ways. His unrivalled knowledge has been devoted unreservedly to the service of the famous Admiralty Library and those who use it, placing them under a debt which cannot easily be repaid. I must also thank Mr. F. J. Hudleston, C.B.E., of the War Office Library, for valuable aid. To the staffs at these two libraries and the British Museum and Patent Office Library I would make every acknowledgment. Whenever I have asked them for help they have given it freely and generously. To other friends, among them Mr. L. Carr Laughton, and Mr. Edward Fraser, all great authorities on naval matters, I am indebted for assistance on numerous points.

The sketch plans of actions and diagrams showing the tracks of fleets must not be regarded as mathematically accurate. They represent only an approximation to the facts. The movements of steam or motor fleets in action are so complicated that it is not possible to indicate them clearly without the use of extremely large charts or diagrams in colours. Even when the best and most accurate plans have been prepared there is much controversy as to exact positions, arising from the inherent difficulties of determining the distance and bearing of ships and squadrons from each other in the uproar, smoke, and mist of battle, on an element such as the sea which is not divided into squares, but eternally in movement, with no features.

For illustrations I have used photographs and, with a few exceptions, photographs of ships at the actual date of the wars

PREFACE

described. The three illustrations not from photographs are by marine artists whose accuracy can be trusted.

In the matter of foreign naval ranks, I have given them in their British equivalent, as determined by Weyer's tables in the *Taschenbuch der Kriegsflotten*. Thus the cumbrousness of some foreign titles is avoided.

I must make grateful acknowledgments to Sir George Sutton, Bart., for generous permission to use matter which is the copyright of the Amalgamated Press, and to the United States Navy Department for its permission, given through the United States Naval Attaché, to use certain diagrams issued in its official works during and after the Spanish-American War.

To the disinterested kindness of Captain T. Toyoda, D.S.O, and Commander Izawa, both distinguished officers of the Imperial Japanese Navy, I am indebted for special help of a most valuable kind in my accounts of the wars of 1894-5 and 1904-5. They have provided me with information of the first importance on doubtful points that are not covered in the Japanese Official History, or the British Official History of the war of 1904-5, with a courtesy and generosity for which I owe them more than words can express.

To Mr. Thomas Marlowe, Editor of *The Daily Mail* and Chairman of the Associated Newspapers Ltd., I am indebted for the generous permission to use *The Daily Mail* copyright photograph of the sinking Blücher, which cost that newspaper £2,000; to Lieutenant-Commander H. W. Fawcett, R. N., for equally kind permission to use the illustration of the sinking of the Queen Mary of Jutland, which originally appeared in that fine work, *The Fighting at Jutland*; to Mr. C. W. Burrows for the use of illustrations that he published in his most interesting book *Scapa with a Camera*; to Signor Camillo Manfroni for his gracious permission to use two illustrations of the sinking of the Szent Istvan, the only Dreadnought sunk in the war at sea by a torpedo, in his *Storia della Marina Italiana*; to Mr. Humphrey Joel for an admirable photograph of the Queen Elizabeth in her war rig; and to that unrivalled authority on modern naval pictography, Dr. Oscar Parkes, O.B.E., for invaluable assistance in many ways.

To distinguish between combatants, the ships on one side are printed in italics, and those of the opposing side in small capitals.

H. W. WILSON.

203 *Elgin Avenue, London, W.9.*

CONTENTS

CHAPTER I

PAGE

<i>Introduction of Armour—Sinope—British and French early Armoured Ships—The American Civil War—"Merrimac" and "Monitor"—"Merrimac's" Action with the Wooden Ships—Indecisive Engagement with the "Monitor"—Mississippi Operations—Grant and the Gunboats—Farragut at New Orleans—Fall of Vicksburg—Decisive Blow to the Confederates</i>	I
---	---

CHAPTER II

<i>Blockade of the South—Vast Scale of The Operation—The North Seizes Advanced Bases—The Capture of Port Royal—Blockade Running—Case of the Peterhoff—Monitors at Charleston—"Atlanta" surrenders—The First Submarine—Farragut at Mobile—The "Tecumseh" sunk—"Shall I go on?"—Fall of Mobile—of Fort Fisher—"Albemarle" torpedoed—Effect of the Blockade—Commerce Destroyers—The "Alabama's" career—Sunk by the "Kearsage"—Southern Attempts to buy Armoured Ships—Geneva Arbitration</i>	20
---	----

CHAPTER III

<i>Danish War of 1864—Austro-Italian War—Tegetthoff—Persano and the Italian Navy—Its Defects—The Austrian Ships—Italian Superiority—Austrians off Ancona—Persano's Hesitation—An Attack on Lissa—The Italians Engage the Forts—Tegetthoff Appears—"Armoured Ships Ram the Enemy"—The "Re d'Italia" Sunk—Persano Declines to Ram the "Kaiser"—The Fleets Separate—Austrian Success not Utilised—South American Operations</i>	41
--	----

CHAPTER IV

<i>Franco-German War of 1870—Blockade of German Coast—Meteor and Bouvet—Spanish Civil War—Russo-Turkish War—Turkish Monitors Sunk on the Danube—Turkish Flotilla cut off—Mutiny of Huascar—Singular Action with the Shah—War between Chile and Peru—Esmeralda and Huascar—Loss of the Independencia—Battle of Angamos—Huascar Captured—Actions off Arica and Callao</i>	58
---	----

CHAPTER V

<i>British Fleet off Alexandria—Orders for the Bombardment of the Forts—Slight Damage to the Ships—The Forts</i>	
--	--

CONTENTS

	PAGE
<i>Silenced—Bad Gunnery—Bombardment of Sfax by French—Courbet in China—Action at Foochow—The Mingan Forts Silenced—Chilean Revolution—Torpedoing of the “Blanco Encalada”—Action off Caldera—Capture of Valparaiso—Affair of the “Itata”—Brazilian Civil War—Strange Conditions in Rio Harbour—“Aquidaban” Torpedoed and Sunk</i>	74
CHAPTER VI	
<i>Japan-China War—State of the two Navies—Action off Asan—The “Tsi-Yuen” beaten—“Kowshing” sunk—Chinese Fleet puts to sea—The Japanese Appear—Battle of the Yalu—Heavy Chinese Losses—Japanese Flagship out of Action—Casualties and Comparisons—Powerful Chinese ships Escape—Port Arthur Captured—Wei-hai-wei Attacked—Greek and South African Wars—Taku Forts.</i>	90
CHAPTER VII	
<i>American-Spanish War—The “Maine” at Havana—She is Blown up—Mistaken Verdict on her Destruction—State of the Spanish Navy—The United States Fleet—Spanish Government’s bad Orders—Cervera in Command—He Steams to the West Indies—Arrives at Santiago—American Movements—Bombardment of San Juan—Sampson Blockades Santiago—Spanish Squadron Ordered to go Out</i>	116
CHAPTER VIII	
<i>The Battle of Santiago—Spanish Ships put to Sea—American Ships Attack—Cervera’s Flagship Disabled—“Vizcaya” put out of Action—Other Spanish Ships sunk or driven Ashore—Hits and Casualties—Charges Against Schley—Fall of Santiago—Puerto Rico Attacked—Americans in the Far East—Dewey Steams to Manila—Destroys the Spanish Squadron there—Casualties—Capture of Manila—Camara’s Unfortunate Voyage</i>	138
CHAPTER IX	
<i>Russia and Japan—Control of Korea—Russian Mistakes—Plan of Operations—Russian Force Scattered—Togo as Commander—The Japanese Fleet—Japan’s Natural Advantage—Russian Organisation—The Vladivostock Squadron—The Czar’s Instructions—The Port Arthur Fleet ill Prepared</i>	163
CHAPTER X	
<i>The Japanese Fleet puts to Sea—“Asama” Engages “Variag”—“Variag” Sunk—Torpedo Attack on the Port Arthur Fleet—Three Russian Ships Disabled—Dewa Reconnoitres Port Arthur—Togo’s Long Range Attack—Casualties and Damage—Attempt to Block Port Arthur</i>	

CONTENTS

	PAGE
<i>Fails—Makaroff Takes Over the Russian Command—His Activity</i>	177
CHAPTER XI	
<i>Makaroff's Sorties—His Flagship Mined and Sunk—Fresh Attempt to Block Port Arthur Fails—Japanese Landing Cuts off Port Arthur—Japanese Disasters—"Hatsuse" and "Yashima" Mined—Russians Decide on a Sortie—Vitsefl Goes Out and then Retires—Futile Torpedo Attacks on his Ships—Fresh Orders to him to Go Out</i>	193
CHAPTER XII	
<i>The Russian Fleet puts to Sea—Battle of August 10, 1904—Complicated Manœuvres—Long Range Action—Japanese Flagship Hit—Crisis of the Battle—Two Fatal Shots for the Russians—Vitsefl Killed—Flight of the Russian Fleet—Its Escape from the Japanese—Hits and Casualties—Japanese Seize the "Rieshitelny"—The Vladivostock Cruisers—Raids and Commerce Destruction—Japanese Siege Guns Lost—Kamimura's Ill Luck—He Brings the Vladivostock Ships to Action—Battle of August 14, 1904—"Rurik" Sunk—Two Ships Escape—Losses</i>	206
CHAPTER XIII	
<i>Last Hours of Port Arthur Fleet—"Asahi" Mined—203 Metre Hill Stormed—Russian Ships put out of Action—Japanese Prepare to Meet the Baltic Fleet—Rojestvensky and his Movements—North Sea Incident—Use of Neutral Bases—His Message to the Russian Government—Nebogatoff's Strange Squadron—Baltic Fleet Steams towards Tsushima—Battle Orders—Japanese Wireless Heard</i>	225
CHAPTER XIV	
<i>Battle of Tsushima—May 27-28, 1905—The Russians Discovered—Togo's Anxiety—He Puts Out to Battle—Comparison of the Fleets—Japanese Cruisers Close Round the Russians—Fatal Mistake of Rojestvensky—Togo's Bold Turn—Fire Opened—The "Asama" out of Action—"Osliabia" Sinks—Fearful Effect of Japanese Shells—Futile Torpedo Attacks—End of the "Suvaroff"—Japanese Losses—Nebogatoff takes the Lead—A Night of Torpedo Attacks—Many Russian Ships Sunk—Nebogatoff Surrenders—Annihilation of the Baltic Fleet—Russian Losses—Courts-Martial after the War</i>	240
CHAPTER XV	
<i>Italian Ultimatum to Turkey—Superiority of Italy at Sea—Tripoli Bombarded—Tobruk Seized—Action at Beirut—Operations in Aegean—Bombardment of Dardanelles Forts—Rhodes Captured—Greek War with Turkey—</i>	

CONTENTS

	PAGE
<i>"Feth-i-Boulend" Torpedoed—"Hamidieh" Torpedoed but not Sunk—Actions off the Dardanelles—The Greeks Superior—Strange Cruise of the "Hamidieh"</i>	266
CHAPTER XVI	
<i>Battleships Disasters—The "Captain" Capsizes in a Gale—The "Vanguard" Rammed by the "Iron Duke"—"Grosser Kurfürst" Rammed by the "König Wilhelm"—The Loss of the "Victoria"—Tryon's Enigmatic Order—The Order Executed—"Victoria" Rammed—Loss of Tryon and 337 Men—Battleship Explosions—The "Mikasa" Destroyed—"Aquidaban" Sunk—The "Iéna" and the "Liberté"—Dangerous "powder B"—Explosions in the Great War—Their Cause still Obscure</i>	282
BIBLIOGRAPHY	309

LIST OF TABLES

TABLE I.	United States Naval Ordnance, 1861-5	319
TABLE II.	Union Fleet at New Orleans	320
	Confederate Forts and Squadron	320
TABLE III.	Union Fleet's Attack on Fort Sumter	321
	Confederate Forts Opposing Attack	321
TABLE IV.	Union Fleet at Mobile	321
TABLE V.	Italian Fleet at Lissa	322
TABLE VA.	Austrian Fleet at Lissa	323
TABLE VI.	Comparison of Fleets at Lissa	323
TABLE VII.	Fleets of Chili and Peru, 1878	324
TABLE VIII.	Ships which took Part in the Bombardment of Alexandria	325
TABLE VIIIA.	Armament of the Alexandria Forts (Guns Mounted only)	325
TABLE IX.	Chinese Fleet at the Yalu	326
TABLE X.	Japanese Fleet at the Yalu	327
TABLE XI.	Comparison of Two Fleets, excluding Gunboats, Torpedo Boats, and Vessels not Built for War Purposes	328
TABLE XII.	Details of Japanese Losses at the Yalu	329
TABLE XIII.	English Heavy Guns	330
TABLE XIV.	Santiago	331
TABLE XV.	Manila	333
TABLE XVI.	10th August, 1904	334
TABLE XVII.	14th August, 1904	334
TABLE XVIII.	Tsushima	335
TABLE XIX.	Armour of Ships in Line at Tsushima	337

LIST OF PLANS

	PAGE
PLAN I. Hampton Roads and the Merrimac against the Monitor	8
PLAN II. New Orleans and Mobile	14
PLAN III. Kinburn, Port Royal, Vicksburg, Charleston	16
PLAN IV. Confederate States and Railways	20
PLAN V. Battle of Lissa and Island of Lissa	48
PLAN VI. Actions of Angamos and Caldera Bay	70
PLAN VII. Bombardment of Alexandria	76
PLAN VIII. Rio de Janeiro and Sinking of Aquidaban.	88
PLAN IX. Battle of the Yalu	102
PLAN X. Wei-Hai-Wei and the Yellow Sea Battles	108
PLAN XI. Harbour and Battle of Santiago	134
PLAN XII. Battle of Manila and San Juan, Puerto Rico	154
PLAN XIII. The Far East in 1904	166
PLAN XIV. Port Arthur and Chemulpo	180
PLAN XV. Battle of August 10, 1904	206
PLAN XVI. Battle of Japan Sea, August 14, 1904	220
PLAN XVII. Battle of Tsushima, I	244
PLAN XVIII. Battle of Tsushima, II	248
PLAN XIX. Battle of Tsushima, III	250
PLAN XX. Japanese Pursuit after Tsushima	258
PLAN XXI. Italian Operations against Tripoli	268
PLAN XXII. Bombardment of Taku and of Tripoli	272

LIST OF ILLUSTRATIONS

<i>Frontispiece.</i>	Bridge of the Tzesarevitch, and Hit which Killed Admiral Vitgeft	
PLATE I.	Diagrams of Merrimac and Monitor's armour	4
PLATE II.	Diagrams of Merrimac and Monitor	6
PLATE III.	Early Monitors at Sea	26

LIST OF ILLUSTRATIONS

	PAGE
PLATE IV. The Re d'Italia Sinking at Lissa . . .	52
PLATE V. Early Battleships Inflexible and Alexandra	78
PLATE VI. Details of Battleships Chen Yuen and Ting Yuen	92
PLATE VII. Chinese Cruiser Chih Yuen and Japanese Yoshino	96
PLATE VIII. Details of the Battleship Maine . . .	118
PLATE IX. Types of Ship in the United States and Spanish Navies	122
PLATE X. Spanish Armoured Cruiser Vizcaya and United States Armoured Cruiser Brooklyn	130
PLATE XI. Admirals Sampson, Dewey, Cervera and Montojo	136
PLATE XII. Wrecks of the Spanish Cruisers after Santiago	142
PLATE XIII. United States Armoured Cruiser New York	150
PLATE XIV. Japanese Battleships Hatsuse and Yashima	170
PLATE XV. Japanese Cruisers Takasago and Asama	182
PLATE XVI. Admirals Togo, Kamimura, Vitgeft and Rojestvensky	190
PLATE XVII. Russian Cruiser Rossia, and Japanese Destroyer Sazanami	216
PLATE XVIII. Russian Battleships Peresviet and Retvisan disabled in Port Arthur	226
PLATE XIX. Russian Battleships Osliabia and Suvaroff	236
PLATE XX. Togo's Fleet off Tsushima	240
PLATE XXI. The Victoria Sinking	294
PLATE XXII. The Last of the Victoria ; the Vanguard	296

BATTLESHIPS IN ACTION

CHAPTER I

Introduction of Armour—Sinope—British and French early Armoured Ships—The American Civil War—"Merrimac" and "Monitor"—"Merrimac's" Action with the Wooden Ships—Indecisive Engagement with the "Monitor"—Mississippi Operations—Grant and the Gunboats—Farragut at New Orleans—Fall of Vicksburg—Decisive Blow to the Confederates.

THE idea of applying iron armour to ships dates back to the beginning of the nineteenth century. In 1805 Sir W. Congreve, the inventor of the rocket at one time largely used in war, proposed the construction of armoured floating batteries carrying mortars, for attacking naval fortresses. In the United States designs for vessels with iron armour were in existence in 1836; and the inventor, R. L. Stevens, in 1842 prepared plans for a large floating battery, protected with 4-inch forged iron plates. This vessel was actually laid down many years later, but according to the engineer, Ericsson, it would never have floated. In 1841 the French General Paixhans suggested the application of wrought iron armour to vessels, to protect them against shell fire; in 1843-4 the French captain, Labrousse, proposed the construction of a frigate of iron, fitted with a ram and with high speed engines, and protected by an arched iron deck;¹ and in 1845 the French engineer and naval constructor, Dupuy de Lôme, submitted to the French Government plans for an armoured frigate

¹Chevalier, p. 133.

which was to employ steam as her principal motive force, and to use sails only as an auxiliary.¹

The battle of Sinope (November 30, 1853) was taken at the time—perhaps erroneously²—to have demonstrated the deadly effect of shell fire on wooden ships, and led to the introduction of armour on a considerable scale. In that affair a Turkish squadron of seven frigates, three corvettes, two paddle steamers and two transports, was destroyed with trifling loss by a Russian squadron under Admiral Nakhimoff, consisting of six ships of the line, two frigates, and three steamers. The Russian superiority of force was overwhelming, with a broadside of about 11,600 pounds against the Turkish broadside of 4,000 pounds. The Turks had no guns firing shells; the Russians had over 200. Only one Turkish steamer escaped, but even if no shells had been employed by the Russians such a result was to be expected when frigates were pitted against ships of the line. The Russian loss was 38 killed and 240 wounded; the Turkish loss was estimated at over 2,000.

One of the consequences of the battle was the intervention of England and France in the war between Russia and Turkey, and the decision of Napoleon III nearly a year later, on July 28, 1854, to build five floating batteries (*Lave*, *Tonnante*, *Congréve*, *Foudroyante*, *Dévastation*). They were vessels of 1,600 tons displacement, suitable only for coast work and of no sea-keeping quality. They were protected by 4½-inch forged iron plates, and with their single screw could steam no more than four knots. They were armed with sixteen 56-pounder smooth-bore guns apiece and two small weapons. Their plan was communicated to the British Admiralty, which somewhat reluctantly ordered two batches, each of four ships, of similar design.³ The first four of wood (*Glatton*, *Meteor*, *Thunder* and *Trusty*) displaced 1,469 tons; the second four of iron (*Etna*, *Erebus*, *Terror* and *Thunderbolt*) were of 1,850 tons. The armour was 4.3-inch wrought iron, and the guns carried twelve to sixteen.

Of the French floating batteries, three, *Dévastation*, *Lave* and *Tonnante*, were in action on Oct. 17, 1855, with the main Russian fort at Kinburn, defending the entrance to the Dnieper. The fort stood on a long sandy spit, running generally northwards; and on the base of the spit Allied troops

¹ Dislere, p. 8.

² See Sir R. Cussance, *Ship of the Line in Battle*, pp. 8, 9.

³ Dislere, p. 12.

landed, so as to cut the garrison off. The three floating batteries were supported by the fire of a numerous and powerful Anglo-French fleet of wooden ships, gunboats and mortar boats; and the Allied light craft took the fort in reverse. The floating batteries closed to a distance of between 920 and 1,200 yards from the fort, which was silenced in four hours, when the Russians surrendered, and next day blew up Fort Nicolaieff, north of the entrance to the Dnieper. The French loss in the armoured ships was 2 killed and 15 wounded; the Russian loss was 45 killed and 130 wounded. The armour proved thoroughly effective against attack by old-fashioned smooth-bores of small power.¹ The *Dévastation* received sixty-four hits, the *Tonnante* sixty-five, and the *Lave* sixty. The floating batteries sustained no serious structural damage, though three projectiles entered portholes. They lay exceedingly low in the water, and had three light pole masts with one diminutive funnel.

These early armoured ships were bad sea boats, difficult to handle, and serviceable only for coastal operations. They required to be towed. But their appearance was followed by the construction of sea-going ships, which carried armour on their batteries. Here France led the way by beginning on March 4, 1858, the construction of four armoured frigates, the first and most famous of which was the *Gloire*.² She was a wooden two-decker with the upper deck removed. The weight thus saved was applied in 4.7-inch iron plating to her sides. On her main deck she mounted thirty-four 56-pounders, and on her upper deck two heavy pivot shell guns.³ She was masted and rigged with a single screw engine, which gave her a speed of thirteen knots.

The British Admiralty, determined not to be left behind, in 1859 began the construction of two large armoured vessels, the *Warrior*⁴ and *Black Prince*, built of iron displacing 9,210 tons and carrying a patch of plating, 4½-inch thick, amidships. The original battery which they were designed to carry consisted of twenty-six 68-pounder smooth-bores behind armour on the main deck, eight of the same guns outside the armour, two 68-pounder pivot smooth-bores and

¹ *Lyons*, p. 368. See plan III, page 16.

² The other three were the *Couronne*, *Normandie* and *Invincible*.

³ Shell 86 pounds in weight.

⁴ Laid down May 25, 1859; completed in October, 1861. At that date France had six armoured ships built or building and Britain seven.

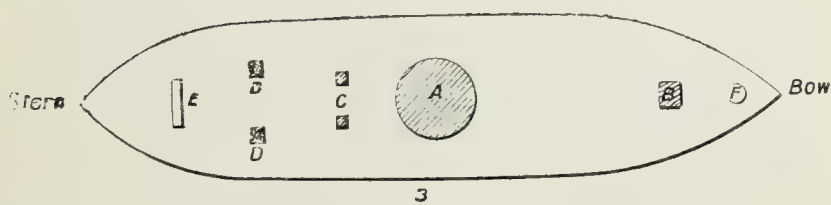
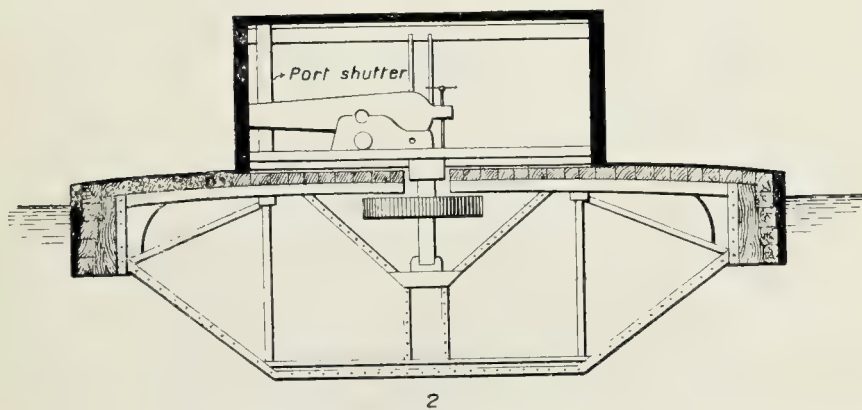
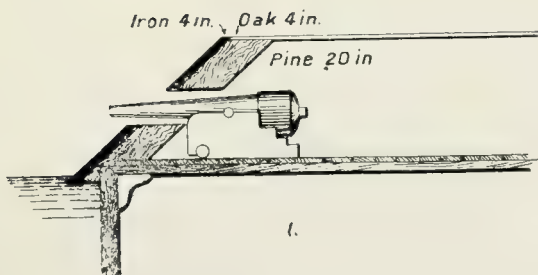
four 40-pounder breech-loaders on the upper deck.¹ These two ships each had ninety-two water-tight compartments in their hulls, were fully rigged, and had two funnels, which were originally intended to be telescoped when they were under sail. They were good seaboats, and steamed fourteen to fourteen-and-a-half knots. They were the progenitors of the long line of British armoured vessels.

The first use of armoured vessels on any considerable scale came in the American Civil War of 1861-5. This was fought between the United States Government and the Southern States, which were attempting to secede and establish a separate republic, the Confederate States of America. The United States forces were also described at the time as Northerners or Federals, from the fact that the Northern States without exception remained faithful to the central government, which they dominated. The Confederate forces were also known as Southerners, and the Confederacy itself was often spoken of as the South, as it included the states south of the slave line.

The United States at the opening of the Civil War (April, 1861) owned a small and not particularly efficient navy, including only forty steam vessels, none of them armoured. Of the steamers, not more than thirty-two could be regarded as effective, and twenty-four of these were on foreign stations, leaving no more than eight in United States ports or waters. All the other ships in the navy were wooden sailing vessels, obsolete in an age of iron and steam. In the higher organisation there was no staff, and the Navy Department consisted of a number of independent bureaux under a civilian secretary. The total of officers and men was 7,600; and of the 1,563 officers, commissioned and non-commissioned, 322 joined the Confederates.

The level of capacity among the officers was high; owing, however, to the slowness of promotion and absence of any satisfactory system of selection the average of age was much too advanced for efficiency in war. The Northern States had a large merchant marine and abundant shipbuilding resources and they were so fortunate as to secure an extremely able Chief of Staff (for such he really was) in Captain G. V.

¹ In May, 1862, the armament was altered to twenty-six 68-pounder smooth-bores; four 70-pounder breech-loaders rifled; ten 110-pounder breech-loaders rifled. She was repeatedly rearmed.



1. Casemate armour of Merrimac
2. Latitudinal section of Monitor
3. Deck-plan of Monitor
 - A Turret B Pilot House C Funnels
 - DD Blower holes E Propeller Well
 - F Anchor Well

Fox,¹ a retired naval officer, who was appointed Assistant Secretary of the Navy.

The Southern States had poor industrial resources and no large number of merchantmen or shipbuilding yards. They could not roll any iron more than 2 inches thick, and they were always in want of metal and engineering materials. Financially they depended on the export of cotton, and, were that cut off, they had no means of paying their way. The white men of the South were admirable fighting material, courageous, high-spirited and patient of discomfort. What they lacked was business capacity and when this was added to the scarcity of iron,² arms, clothing and every kind of equipment, they were handicapped for war from the start.

The first large American armoured ship was the Confederate MERRIMAC, a converted wooden frigate, originally constructed for the United States Navy. She had been set on fire and scuttled at Norfolk, Virginia, when the dockyard at that place fell into the hands of the Confederates. She was raised in May, 1861, and as her hull was found to be only slightly damaged the upper works were removed and a casemate with sloping sides and curved ends was built on her. It was protected by two layers of iron plate, each 2 inches thick rolled from rails. In it were mounted ten guns; forward and aft were two 7-inch rifled weapons which could be trained on the keel line or either beam, and on each broadside one 6-inch rifled gun and three 9-inch smooth bores. She had no solid projectiles for her weapons and the shells of that day were useless against armour. She was mastless, had one funnel, and her engine could only just move her along when the tide was against her. A ram of cast iron was somewhat clumsily fitted to her wooden bow. She had a small conning tower forward, plated with 4 inches of iron. The armour of her casemate sloped down some 2 feet under water and projected slightly from her hull. Completed in March, 1862, she was commanded by Captain F. Buchanan, and manned by 320 men, most of them picked from the Confederate army.

Reports that the Confederates were building armoured vessels led the United States Navy Department to order the construction of similar or superior ships. The most famous

¹ Born 1821, died 1883.

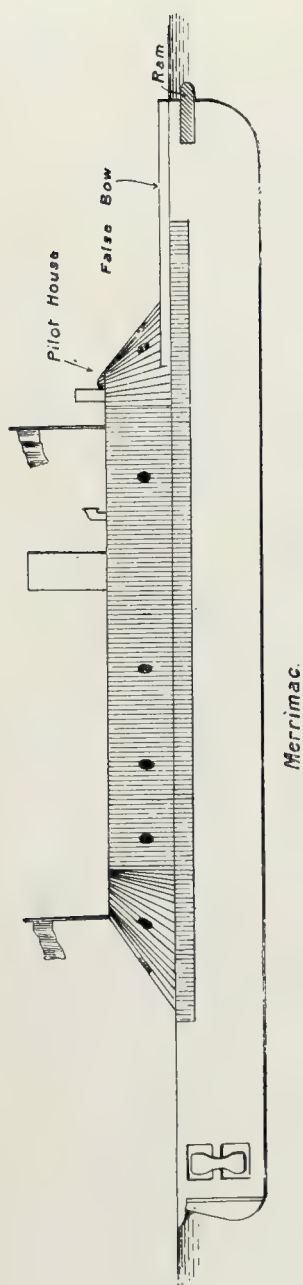
² Three miles of railway near Vicksburg had to be torn up in 1862 to provide armour for Confederate vessels on the Mississippi.

of these was the *Monitor*, designed by the Swedish engineer, John Ericsson, who conceived the idea of placing one or two guns in a revolving turret, behind strong armour. The same idea had occurred to Captain C. P. Coles of the British Navy. In 1860 he had proposed the building of a raft-like vessel on which were to be nine domed turrets, each revolving and containing a pair of guns; and in 1861 he had designed the Danish double-turret vessel, Rolf Krake.¹ The *Monitor* was laid down on October 25, 1861, and delivered on February 19, 1862. Her displacement was 1,225 tons. Her one turret was almost in the centre of the ship, protected by eight layers of 1-inch iron. It was 20 feet in diameter and 9 feet in height, revolving on a centre pivot which was rotated by a steam engine. Heavy iron stoppers closed the gun ports when the guns were run in. The conning tower placed forward, where it obstructed ahead fire, rose 4 feet from the flat deck and was roughly built of logs of iron, 9 inches thick, with sight holes $\frac{5}{8}$ -inch wide. The deck was armoured with two thicknesses of $\frac{1}{2}$ -inch plate; the hull above and near the water line was protected by five layers of 1-inch iron, this belt projecting outwards so that she could not be rammed.

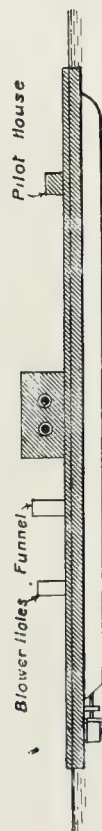
The vessel was almost flush with the water; her two small funnels could be removed for battle, as also could her two ventilating tubes through which air was sucked by power. Her armament consisted of two 11-inch smooth bores, firing solid round shot of 166 pounds weight at an exceedingly slow rate. She was commanded by Lieutenant J. L. Worden, and all in her were volunteers, as she was considered to be a doubtful and dangerous experiment in naval architecture. She was in actual fact a bad seaboat, and closed her glorious career by foundering at sea (December 29, 1862) with sixteen out of her crew of sixty-five.² Her appearance was extraordinary; she was described by contemporaries as a "cheese-box on a raft." Like the MERRIMAC, she presented no unarmoured target to an enemy, but against the MERRIMAC she had one great advantage for work in coastal waters. Her draught was only $10\frac{1}{2}$ feet, whereas the MERRIMAC drew 22 or 24 feet, and she was much handier than the Southern armourclad.

¹ See p. 41.

² The bad nautical qualities of the monitor class are emphasised in a report by five commanders of these vessels (*Armoured Vessels*, p. 109). They are, the commanders say, "entirely inadequate to maintain a blockade at sea." The illustration (Plate III, p. 26) shows their low seaworthiness.



Merrimac.



Monitor

PLATE 2

[p. 6

The above diagrams illustrate the disposition of armour in the *Merrimac* and *Monitor*, and show that all or almost all of their hulls above water were protected by iron plating which the guns of that date could not pierce.

The *Monitor*, in tow of a small tug and convoyed by two feeble gunboats, left New York on March 6, 1862, for Hampton Roads, where the MERRIMAC was daily expected to appear, and where a number of United States warships were lying, guarding the entrance to the James River. The voyage demonstrated the bad nautical qualities of the little vessel, and a less resolute officer than Worden might have turned back. The ventilation system broke down and water poured into her. But in the afternoon of March 8 she reached the entrance to Chesapeake Bay; and Worden, hearing the heavy sound of guns, at once proceeded to Hampton Roads, where he arrived after dark that evening.

That day had been one of battle—the first encounter between armoured and unarmoured ships. It was a bright and calm morning when shortly before noon the MERRIMAC steamed slowly down the Elizabeth River. Her purpose was to attack the old wooden United States warships which, by the wish of the military authorities, were stationed in Hampton Roads. Two of these were at anchor off Newport News, both of them sailing vessels of obsolete type, which carried between them 800 officers and men. They were the sloop *Cumberland* of twenty-four guns, and the frigate *Congress* of fifty guns.

Buchanan was determined to obtain decisive results, and for that purpose he intended to use his ram, possibly because powder and shell were scarce in the Confederacy. He steered the MERRIMAC direct for the *Cumberland*, and as he approached her came under a violent fire from her, from the *Congress*, and from the United States batteries ashore. To the stupefaction of Northern spectators, the projectiles rebounded from the MERRIMAC's armour as if they had been balls of indiarubber. The MERRIMAC's shells had a very different effect on the wooden ships, inflicting heavy casualties. Buchanan stood on till the MERRIMAC's ram struck the *Cumberland* forward, well below the water line, tearing an immense hole in her. Then the armoured vessel backed out, leaving her ram in her antagonist's hull.

The *Cumberland* immediately began to sink, but her crew stood to their guns to the very last. As they continued their seemingly useless fire, the MERRIMAC turned her attention to the *Congress*, which had made sail while the *Cumberland* was being attacked, and in an effort to escape had run aground in shoal water. The MERRIMAC took up a position whence she could rake the *Congress*, and for an hour poured in shell till

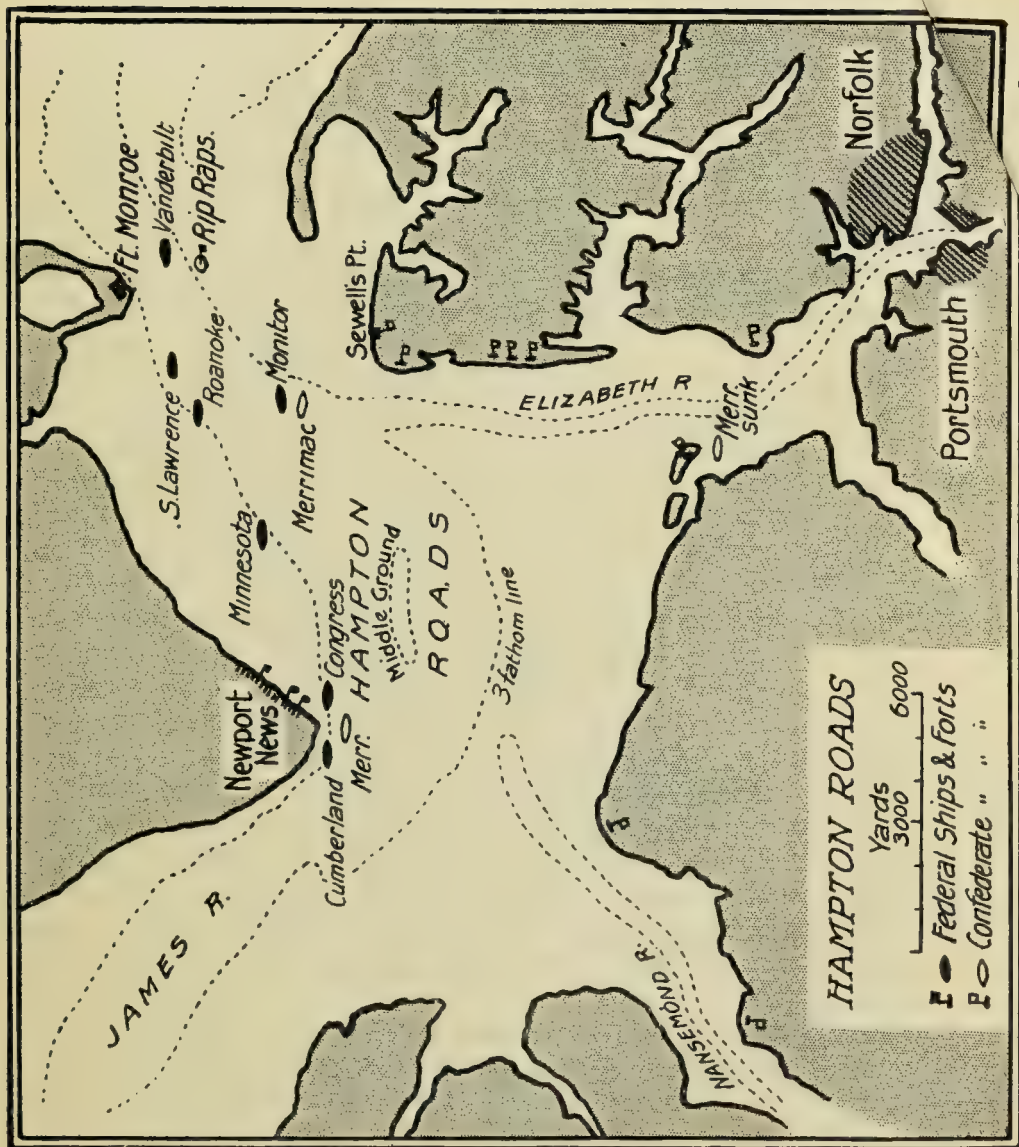
the *Congress* was on fire in several places and the Northern crew hoisted the white flag. The gallant resistance of the crews in these two weak ships had important results. By the time the *Congress* was out of action the tide was ebbing and day was declining.

For that reason the MERRIMAC had to return to Norfolk, without destroying three other large wooden ships, the *Minnesota*, *Roanoke* and *St. Lawrence*, which were all aground and seemingly at her mercy. She had sustained no serious injury beyond the loss of her ram and the disablement of two guns; and her casualties were only 2 killed and 8 wounded,¹ though among the wounded was her commander, Buchanan. She had destroyed two ships, inflicted a loss of 257 officers and men killed, and caused panic at Hampton Roads and consternation throughout the United States.

During the night that strange new craft, the *Monitor*, took up a position near the *Minnesota* in order to protect her from the attack of the armourclad, which everyone felt certain would be delivered next day. The Confederates saw her in the glare of the burning *Congress*, and had no doubt of her identity; and when at 8 a.m. of March 9, the MERRIMAC once more came out, under the command of Lieutenant Catesby Jones, they were aware that a stiff fight was before them. Jones steamed towards the *Minnesota*, but at once Worden placed the *Monitor* between her and the MERRIMAC and, when the MERRIMAC opened fire, crept towards the Confederate ship and fired his guns point-blank. The MERRIMAC replied with a broadside. Thus began a singular encounter in which neither vessel could seriously injure the other.

The MERRIMAC's guns, without solid projectiles, were unable to perforate the *Monitor's* turret, and the *Monitor's* 11-inch smooth-bores were equally ineffective against the MERRIMAC's mail. Worden, observing this, made a determined attempt to ram the MERRIMAC, but though he had a distinct advantage in speed, missed her propeller. The two vessels continued a sluggish artillery combat, the MERRIMAC firing a broadside every fifteen minutes, and the *Monitor* every seven, until Jones decided that his best course was to leave the *Monitor* and sink the *Minnesota*. He turned towards the wooden ship, when the MERRIMAC, owing to her heavy draught, ran aground and remained

¹ The official figure. (*Official Records*, I. vii, p. 42).



immovable for fifteen minutes at some distance from the *Minnesota*.

When the MERRIMAC again floated, Jones determined to run down the *Monitor*. His ship, however, was unwieldy and exceedingly difficult to handle in a narrow and shoal channel; the faster and handier *Monitor* was able to avoid the full force of the blow which he dealt and all that happened was that the MERRIMAC's bow was deeply cut by the sharp edge of the *Monitor*'s armour belt and a bad leak was started in it. Once more the vessels parted; they had now been firing at one another for two hours, and neither had been able to disable the other. The ammunition in the *Monitor*'s turret was exhausted, and she hauled off to shoal water, where she was in complete safety from the heavy-draught MERRIMAC, to hoist up a fresh supply.

The Confederates were astonished at her retreat, and took it as a sign of defeat, though she had seemed to them to have the upper hand in the fighting. At 11.30 the *Monitor* once more approached the MERRIMAC and the action was resumed. The Southern gunners changed their methods; they now fired at the *Monitor*'s conning tower and speedily produced results. Worden was stunned and temporarily blinded by a shell which burst outside one of the slots as he was looking through it, but, though his pain was terrible, he had the presence of mind to order the *Monitor* to sheer off. She dropped back into shoal water and there remained for about twenty minutes. The MERRIMAC could not follow her, and the Southerners supposed that the Northern vessel was finally out of action. The MERRIMAC, therefore, headed for the Norfolk batteries, as she had no chance of destroying the United States wooden ships which were aground where she could not get at them. The *Monitor* fired one or two shots at her and then stood by the *Minnesota*, until this vessel got afloat.

Thus, this first engagement between armoured vessels was a drawn one, in which both escaped without any very grave injury, and neither was able to destroy the other, owing to lack of offensive power. The *Monitor* showed twenty-two hits, of which two were on the conning-tower, nine on the turret, eight on the side armour, and three on the deck. The MERRIMAC sustained twenty hits¹ but in no case was her

¹ Confederate authorities say forty-one hits from the *Monitor*; and the *Monitor* fired forty-one shots at point blank range, so that the Confederate figure is probably correct.

armour perforated, and though it was in places damaged and broken, the injury was easily made good. All her boats were shot away and her funnel and steam pipe were riddled. Her casualties were 11 wounded; the *Monitor* had half a dozen men wounded, none of them, except Worden, at all seriously.¹

A month later on April 11, 1862, the MERRIMAC came out once more, having been thoroughly refitted and supplied with solid projectiles for her guns. But on this occasion the United States forces refused battle, though Confederate small craft under cover of the MERRIMAC's guns carried off three small vessels from Newport News. The MERRIMAC² threatened the communications of McClellan's army, then operating in the Yorktown peninsula. The *Monitor* was the only vessel capable of holding the Southern armourclad in check, but had she once more accepted battle her turret would have been subjected to a fire which would probably have pierced it and ended the encounter to her disadvantage. As it was, she may literally be said to have saved the United States. But for her presence and action the whole force at Hampton Roads would have been destroyed or driven off, the blockade of the South broken, and intervention perhaps rendered inevitable. The MERRIMAC's famous career ended on May 11, 1862, when she was run aground and burnt, after Norfolk had been evacuated, in consequence of McClellan's operations.

At the opening of the Civil War control of the Mississippi from Cairo to New Orleans had passed into the hands of the Confederates. To recover command of that river was one of the most vital objects of the United States strategists, the other two being to blockade the Confederate seaboard and destroy the Confederate armed forces. The Mississippi, with its tributaries, was the best means of communication between the chief centres of population in the western portion of the Confederacy. Its valley divided the eastern part of the Confederacy from the great food-producing states of Missouri, Arkansas, Louisiana and Texas. If the United States forces held the Mississippi, they sundered the South into two halves, and from³ bases on the river could advance from the west into the very heart of the Confederacy. The South at that date had few railways,⁴ and these were badly

¹ See *Official Records*, Series I, vii, 26 ff.

² For her "paralysing" effect on McClellan's army, see *Official Records*, I, vii, p. 99.

³ On the strategical importance of the Mississippi, see J. Early, *Memoir* p. 34.

⁴ 9,283 miles out of 31,256 in the whole United States. Schwab, p. 273 ff. See Plan IV, page 20.

equipped and of low carrying power, so that by 1863 not many of the lines could run more than two trains a day. Metalled roads hardly existed.

The creation of a strong flotilla of river gunboats which could move downstream from Illinois and gain touch with sea-going vessels of the United States Navy moving up the river from its mouth, was undertaken at once by President Lincoln's Government. Among the vessels constructed were nine flat-bottomed gunboats with casemates protected forward by 24 inches of oak and $2\frac{1}{2}$ to $3\frac{1}{2}$ inches of iron armour, and amidships and aft by some patches of iron armour without wood backing. They had small conical conning-towers protected by timber and $1\frac{1}{2}$ to $2\frac{1}{2}$ -inch armour, and they carried an armament of 9-inch, 8-inch, and 32-pounder smooth-bores, with a number of rifled and exceedingly unsafe 70-pounder guns. Their decks were unprotected, and this proved a great weakness, as they had usually to engage batteries placed on the high ground which at many points borders the Mississippi. These gunboats were built by the army authorities and were manned with soldiers, sailors, steamboat hands and officers drawn from the army and navy. The Confederates, so far as their much feebler resources permitted, constructed similar vessels.

The Northern flotilla supported Grant's operations from Cairo and constantly skirmished with scattered Confederate marksmen who infested the banks of the rivers. On February 6, 1862, it took part in the combined naval and military attack on Fort Henry, where there were batteries on both sides of the Tennessee river, barring access by that route to the very centre of the South. The gunboats were subjected to a severe fire; one single shot from a Confederate battery, which pierced the armour of the *Essex* and hit her boiler, caused 28 casualties, mostly fatal; but generally their armour proved effective, and they had a great share in the capture of a most important strategic position.

Immediately the Tennessee was open, three of the flotilla proceeded upstream, destroyed the important railway bridge by which the Memphis and Ohio line crossed the river, and captured or destroyed several Confederate steamers, one of which was in process of being armoured, and large stocks of Confederate supplies. Not only this, but the Northern gunboats were able to steam up the Tennessee over 100 miles to a point beyond Chickasaw, thus threatening the railway from Memphis to Charleston, which crossed that river a little

higher up. This line was one of the only two railways connecting the Atlantic seaboard of the Confederacy with the Mississippi Valley, and its strategic importance was great.¹

After the fall of Fort Henry, Grant, with his usual energy and promptitude, moved against Fort Donelson, a strong series of works commanding the passage up the Cumberland River. The armoured gunboats co-operated with his troops. On February 13, 1862, one of the gunboats bombarded the Confederate batteries, and received one hit from a heavy projectile which pierced her armour and inflicted a dozen casualties. The fire of the vessel had no very great effect beyond occupying the attention of the Confederates while Grant was establishing batteries ashore.

Next day, February 14, the gunboats were ordered to engage the batteries and, if possible, to run past them, taking the works in reverse and cutting off the Confederate line of retreat by the river. The combat was a severe one and ended in the repulse of the gunboats, which were a good deal damaged and lost 11 killed and 43 wounded, among the latter being the naval commander, Flag-Officer² A. H. Foote. In a few cases the armour was perforated. The check was entirely due to the failure of the steering appliances under fire, which rendered the gunboats unmanageable. The Confederates, after an unsuccessful sally, surrendered on February 16.

The excellence of Grant's co-operation with the gunboats and his grasp of the possibilities which they opened to his forces would alone mark him out as a great commander, even if there were no Vicksburg campaign to his credit. He wished to move immediately by the line of the Tennessee into the interior of the Confederacy, but his superior officers were not ready for such a daring plan of campaign and a great opportunity was lost. Indeed, he was temporarily removed from command, but when he returned to the field, it was to find that the Northern army had been moved up the Tennessee, much as he had originally proposed, to the neighbourhood of Shiloh, where a large Confederate army had concentrated, and there the battle of that name was fought on April 6 and 7. In that engagement two of the gunboats co-operated, as Grant says "with vigour and effect";³ and in the night of the 6th

¹ The western portion of it later in 1862 was captured by the Federals when it became useless to the South. See map of the railways, p. 20.

² Until 1862 the United States Navy had no higher rank than captain. Captains in command of squadrons were officially called flag-officers.

³ *Personal Memoirs*, i, p. 367.

dropped a shell every fifteen minutes into the Confederate lines.

Meantime the gunboats and a second United States force under General Pope captured Island No. 10¹ on the Mississippi, after two gunboats had run past that work downstream. Warned by the fight at Fort Donelson, the gunboats effected their passage at night and protected themselves by lashing barges alongside filled with coal and bales of hay, and by arranging additional protection in the form of hawsers, cables and timber. The island surrendered on April 8, and the United States forces were able to move down the river to the next Southern work at Fort Pillow. Here, on May 10, 1862, an action was fought between Confederate steamers, fitted with iron rams and roughly protected by timber and compressed cotton bales, and four Northern gunboats. Two Northern vessels were rammed and one of the two was sunk.

The United States authorities had previously obtained seven steamers and strengthened them for ramming, and they were now brought into action. After the fall of Fort Pillow under attack by the troops ashore, the Northern flotilla on June 6 steamed down to Memphis where two rams and five gunboats engaged the Confederate vessels. Four of the Confederate craft were sunk, two of them by the ram. The others took to flight, but all were destroyed or captured with one exception. Memphis at once surrendered, and the Mississippi was now open as far south as Vicksburg. The vulnerability of the gunboats was illustrated, however, by the disablement of the *Mound City* in an engagement on June 17 with a Confederate battery at St. Charles on the White River. A shot pierced her side and struck her steam drum, and of her crew of 175, 82 were scalded to death and 43 leapt into the water and were drowned there.²

In March, 1862, Flag-Officer D. G. Farragut began preparations to force a passage up the Mississippi from the Gulf of Mexico and thus join hands with the river flotilla moving southward. Farragut was old for naval war; born on July 5, 1801, he was sixty years of age, at the date, but like the elder Moltke, he had retained all his energy and decision of character in spite of advancing years. He was a firm believer in close action and constantly reiterated the maxim that the best

¹This island has vanished long ago owing to the changes in the Mississippi channel.

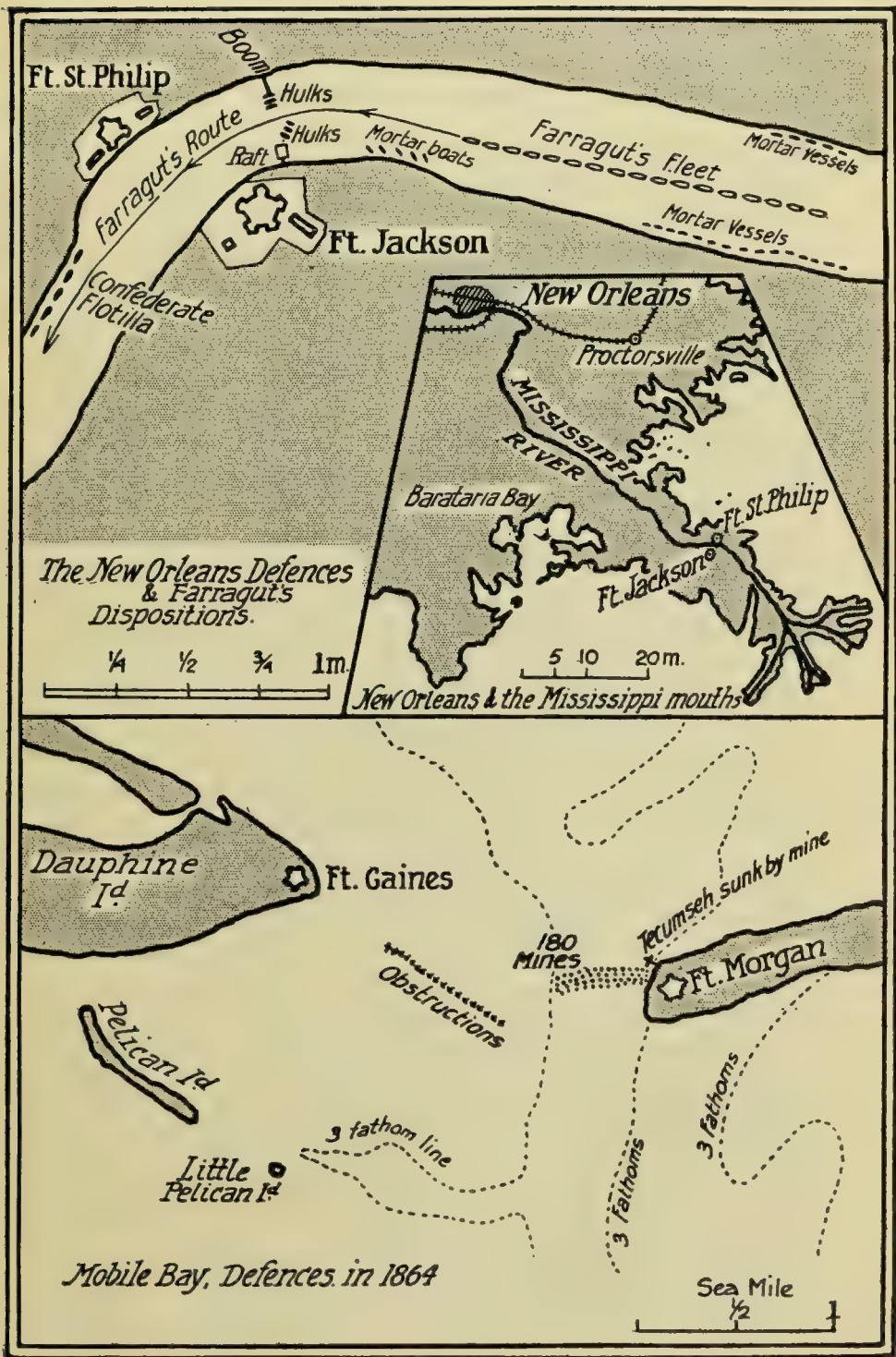
²*Official Records*, I, xxviii, p. 171.

protection in war is to direct an effective fire upon the enemy. He did not dispute the value of armour, however, and in his subsequent operations against Mobile, delayed until armoured vessels had joined his squadron. He was a leader who never acted recklessly and yet always was for the boldest course.

His task in clearing the Mississippi was a difficult one. The depth of water on the bar which hinders access to the river was exceptionally small that spring, but the river was unusually high inside the bar, and the current strong. Nevertheless Farragut was confident that his ships could run past the poorly armed¹ works near the mouth of the river, cut their communications, and compel their surrender, though it was obviously a much more difficult enterprise to force a passage upstream than downstream, as the Northern river gunboats had done. With a fleet of four screw sloops (his own flag flying in the *Hartford* armed with twenty-two 9-inch smooth-bore guns), one paddle sloop, three screw corvettes, and nine screw gunboats, carrying in all 154 guns; six steamers armed as gunboats; and twenty mortar schooners, each carrying one 13-inch smooth-bore mortar, he entered the river and was ready for operations on April 17.

Two Confederate works barred his way, seventy miles below New Orleans. On the left bank coming up from the mouth was Fort Jackson, a stone structure mounting seventy-five guns. Higher up the river, on the right bank, at a bend, so placed that its guns could rake vessels coming upstream, was Fort St. Philip, a work of old-fashioned trace mounting fifty-three guns. In both forts the guns were mostly of ancient pattern; any modern weapons mounted were weak and untrustworthy rifled guns. To give additional security, in view of the inadequate armament of the forts, the Confederates had blocked the river abreast of Fort Jackson with a boom of heavy timber, but this gave way shortly before Farragut's attack and was carried into the shore. They then anchored in the stream a number of old schooners, which were linked together by heavy chains. They had also a small flotilla of improvised warships, mounting forty-one guns in all, few of them modern. The chief vessel in it was the *MANASSAS*, a tug with a tortoise-like structure of timber above the water-line, plated with iron $1\frac{1}{2}$ inches thick, and mounting one heavy smooth-bore forward. There were

¹ Pollard, *Lost Cause*, pp. 246-9. Details in Table II.



further several steamboats, and two large armoured vessels, both of which were incomplete. Farragut, as the Confederate naval officers said, was just a little too quick for them.

The mortar schooners began to bombard Fort Jackson on April 18, and though the gunners in the fort replied so effectively that one division of mortar vessels had to shift its position, the bombardment caused the Confederates a good deal of annoyance, if it did little serious damage. It was continued day after day; and meantime in the night of April 20 two of the Federal gunboats succeeded in making a clear opening through the obstruction.¹ On the 23rd the opening in the boom was tested by a Northern officer. Farragut determined to lose no time. At 2 a.m. of April 24, he moved out to pass the boom and forts with all his seventeen warships formed in three divisions, each proceeding in line ahead. His own flagship was in the centre of the line, much against his own wishes, as he was anxious to lead. His total weight of metal on the broadside was about 12,000 pounds; with every gun in action the forts would fire 7,000 pounds of projectiles. The vessels were as far as possible protected with chain cables, bags of coal, ashes and sand; they were trimmed to draw most water forward, so that if they grounded they would not be swung across the river by the current; and they were daubed with yellow Mississippi mud to render them inconspicuous. Strict orders were issued forbidding any vessel to withdraw without the flag-officer's permission.

The Northern ships were greeted with a heavy fire from the forts, and attacked by the *MANASSAS* and by fire rafts which the Confederates released down stream. The *Hartford* grounded just under Fort St. Philip, while attempting to avoid a fire raft which was pushed towards her by a tug. For some minutes she was in extreme peril, as the flames ran up her rigging, but the fire was put out, and, helped by the current, she again floated, and passed safely upstream with a loss of only 10 killed and wounded. In the darkness, which was rendered more impenetrable by the dense smoke from the rafts and guns, two collisions took place in the Federal squadron, and the ram *MANASSAS* made repeated ramming attacks, and striking the *Brooklyn*, caused much damage to that ship. Yet of Farragut's force, only three gunboats failed to get past the forts.

¹ According to Confederate authorities, the boom was broken by vessels which drifted down from above. Scharf, p. 284.

Once above them the Federal vessels fell upon the Confederate flotilla, and as neither of the Confederate large armoured ships was able to move, made short work of it. One Northern gunboat was rammed and compelled to run aground, but against this loss nine Confederate vessels, including the ram MANASSAS, were destroyed. The total loss in the United States fleet was only 37 killed and 147 wounded, which was small in relation to the importance of the success. By noon of April 25, Farragut anchored in the river before New Orleans, which city was compelled to surrender. His anticipation that the forts would not be able to hold out, with the warships commanding the river above them, was fully justified when on April 28 they hoisted the white flag. They had no line of communication open with the Confederacy and had no other course. Farragut had struck one of the severest blows in the war. "If New Orleans had not fallen," wrote the Southern envoy sent to Paris, Slidell, "our recognition (as an independent state by Napoleon III) would not have been much longer delayed."¹

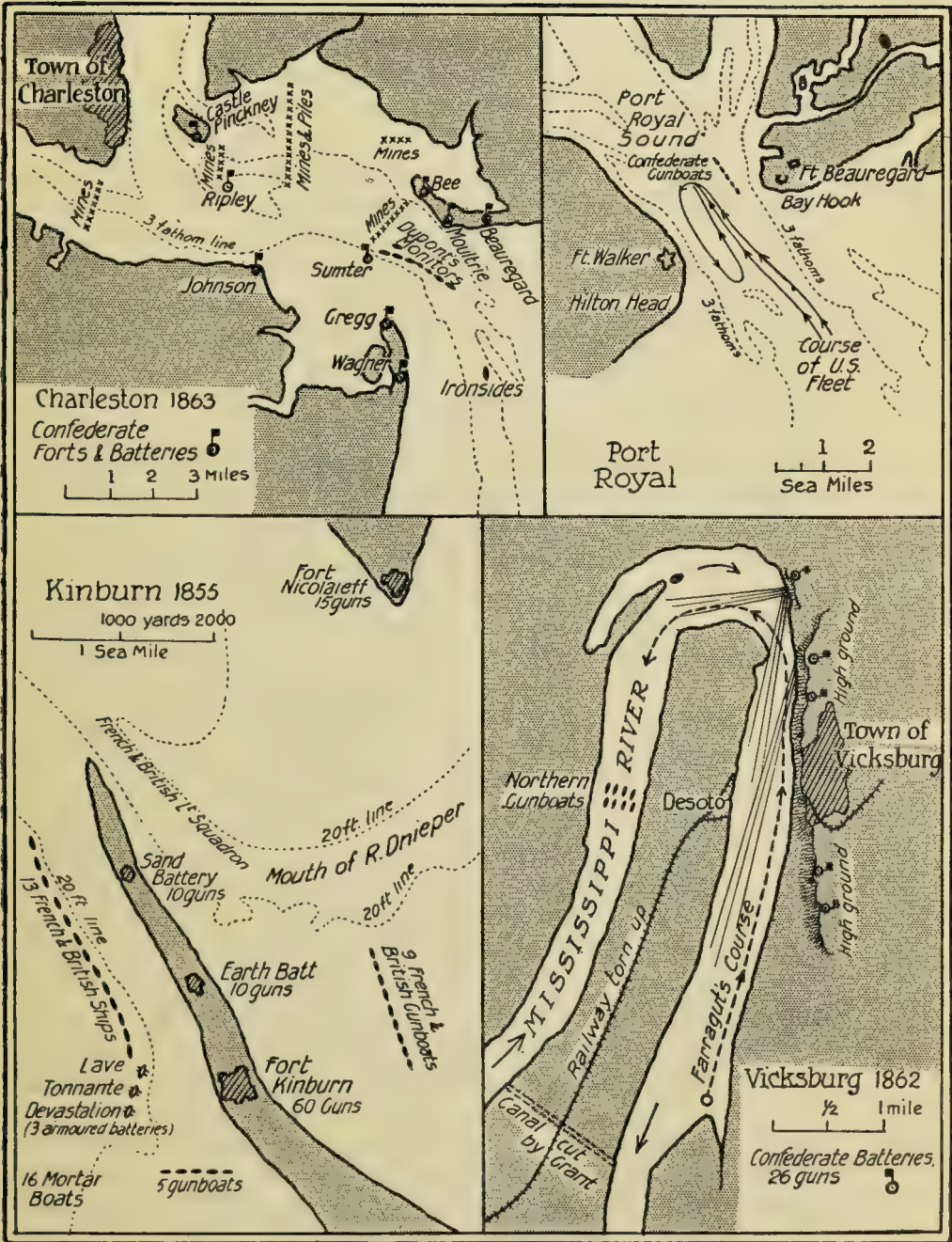
For the ease with which he passed the forts, Farragut was largely indebted to the mistakes of the Confederate command, which expected attack to come down the river, from Porter's gunboat flotilla.² In consequence, it sent most of its available force above New Orleans. Behind the two poorly armed forts there was nothing. Moreover the troops garrisoning the forts were of inferior quality, as all the best Confederate officers and men were serving on the various fronts. The naval defences of the Confederacy were almost invariably held by men with little training, and in this special case the garrisons were extremely weak for hand-worked guns, totalling only 700 men at New Orleans. In such circumstances the success of Farragut's excellently planned and boldly executed movement was not surprising.

Only one important Confederate position at that date remained to bar the Mississippi route. This was the town of Vicksburg, 230 miles (400 by the river) north of New Orleans, where the stream was narrow and bordered on the east by ground so high that the guns of ships could not be sufficiently elevated to attack with effect.³ Farragut never supposed that such a place could be captured by purely naval attack, and

¹ Pollard, *Secret History*, p. 195.

² Scharf, p. 300.

³ Owing to changes in the Mississippi channel since the war, the topography is now completely altered. The maps in Badeau's *Military History of U. S. Grant*, i, pp. 156, 296, show it as it was in 1862-3. See plan III, page 16.



PLAN 3

in June, 1862, the United States land forces in the West were engaged in operations far up the Tennessee and could lend no assistance against it. The naval authorities, however, ordered him to move above the town and endeavour to take it. On June 28 he steamed up past the forts at night, in double line, with a loss of 15 killed and 30 wounded; and joined hands with the flotilla of gunboats. Vicksburg did not fall, because it had good land communications with the Confederate forces. A year was to pass before it was captured. In the period following Farragut's arrival north of Vicksburg, the Federal gunboats made an attempt to destroy a Southern armour-clad, the *ARKANSAS*, building on the Yazoo river, but she was too much for them and succeeded in reaching Vicksburg.

Farragut's crews were in such poor condition from sickness and fever and the level of water in the river was falling so fast, that on July 15 he once more ran past the Vicksburg batteries, this time downstream, and in his passage made an attempt to destroy the *ARKANSAS*. His loss was small, but the *ARKANSAS* remained afloat. Her engines broke down on August 6, as she was preparing to engage a Federal squadron, and her crew destroyed her. Farragut's retreat to New Orleans once more gave the Confederates complete control of the Mississippi from Vicksburg to Baton Rouge.

In the winter of 1862 the Northern gunboat flotilla on the river, now under Flag-Officer D. D. Porter, was augmented by a number of "tin-clads," or light draught gunboats plated with bullet-proof iron. It lost, however, the armoured gunboat *Cairo*, sunk on December 12, 1862, by two mines of an early type—casks filled with powder and exploded by a simple friction primer. At the beginning of 1863 a strong land force under Grant arrived near Vicksburg, which had in the meantime been thoroughly fortified, and began operations for its capture. Two of the Northern vessels successfully ran past the batteries in order to stop the movement of supplies across the river, but both were destroyed, though not before they had done a good deal of damage.

Grant's Vicksburg campaign belongs to the history of land war. Throughout it the United States Navy rendered invaluable aid, and without the gunboats to control the Mississippi above the fortress he would have been in extreme difficulty. In March, 1863, Farragut was ordered to move up the river from New Orleans. The task of doing this had now become an arduous one. Nineteen heavy guns had been

mounted by the Confederates in batteries on high ground at Port Hudson, north of Baton Rouge. Farragut with seven ships, six of them lashed in pairs together, endeavoured to run past the works, in the night of March 14, covered by a bombardment, which was executed by the mortar vessels. Of his seven vessels, however, only two made the passage, his flagship and the gunboat lashed to her, and one of the squadron was destroyed. His total loss was 114 killed and wounded. Two vessels of the gunboat flotilla were sent down by Porter to reinforce him, running past the Vicksburg batteries, and he was able to cause the Confederates a good deal of annoyance and to stop the flow of supplies down the Red River.

Grant now decided to move a force below Vicksburg, an enterprise of extreme daring, and he found Porter ready and anxious to co-operate. On April 16 Porter himself with seven gunboats and four steamers ran past the formidable batteries with the loss of only 13 wounded. They were followed a few days later by six other vessels, which got past with the loss of one steamer sunk. On April 29, 1863, four Northern gunboats attacked the Confederate works at Grand Gulf, below Vicksburg, but were repulsed and suffered considerably, losing 21 killed and 57 wounded. The position was abandoned by the Confederates early in May. Farragut, leaving his two ships, in accordance with orders from the Navy Department, had rejoined his squadron south of Port Hudson, for which purpose he had to travel overland; and Porter remained in command on the Mississippi.

His gunboats were exceedingly active. On May 22 and 27 vessels in his command were engaged in attacks on Vicksburg, in co-operation with Grant's forces, without any distinct success, and he lost one gunboat sunk by the Confederate batteries. From June 19 onwards Vicksburg was continuously bombarded by the gunboats; it surrendered, as the result of Grant and Porter's admirably organised combined work, on July 4; and five days later Port Hudson was captured by a combined attack. The Mississippi, except for occasional annoyance by guerrillas, was thereafter controlled from its source to the sea by the North.

The operations confirmed the old principle that ships cannot engage forts with any chance of success, especially when the forts are placed on high ground. Squadrons, however, and even single ships were generally able to run past batteries whether up or down stream. The chief exceptions were at

Fort Donelson, where the gunboats were repulsed, and at Port Hudson, where five of Farragut's seven vessels were driven back. The fall of Vicksburg, coinciding with the Northern victory at Gettysburg, sealed the fate of the Confederates, though they struggled on for nearly two years. With the loss of Vicksburg and Port Hudson it became impossible for them to draw food products from the rich country west of the Mississippi, and a shortage of supplies began in the Confederacy.¹

¹ For the effect of the loss of the Mississippi see Pollard, *Lost Cause*, pp. 395, 415, 426, 481-7.

CHAPTER II

Blockade of the South—Vast Scale of the Operation—The North Seizes Advanced Bases—The Capture of Port Royal—Blockade-Running—Case of the Peterhoff—Monitors at Charleston—"Atlanta" surrenders—The First Submarine—Farragut at Mobile—The "Tecumseh" sunk—"Shall I go on?"—Fall of Mobile—of Fort Fisher—"Albemarle" torpedoed—Effect of the Blockade—Commerce Destroyers—The "Alabama's" career—Sunk by the "Kearsarge"—Southern Attempts to buy Armoured Ships—Geneva Arbitration.

THE capture of the Mississippi line by the North was a step towards completing the blockade of the South. The dependence of the South upon the outside world for so many military necessities, among them lead, sulphur,¹ and nitrates, was well understood in the North, and led President Lincoln to proclaim a blockade of the Southern coast (excepting only the two states of North Carolina and Virginia, which had not then definitely declared themselves²) on April 19, 1861. The object of the blockade was to stop the exportation of cotton and thus to deprive the Confederacy of funds, and to prevent the importation of arms, military stores and manufactured goods. In view of the dependence of the British cotton industry upon the South, both Federals and Confederates argued that the blockade must secure for them British support.

The Federals thought that Britain would assist them as the best way of shortening the war; the Confederates imagined that she would intervene on their behalf, sooner than allow one of her greatest manufactures to be ruined. Both were wrong, though the loss which Lancashire suffered was enormous. As the blockade became effective it reacted with

¹ J. Davis, i, p. 316.

² The blockade was extended to them on April 27.

disastrous result upon the military operations of the South. Thus, in January, 1864, General J. Johnston reported that two out of four brigades in the western Confederate army could not move for want of shoes.

The Confederacy had an area of 728,000¹ square miles and a free white population of 5,581,000, with 3,000,000 slaves. Its coast line was about 3,000 miles long, but its ports available for commerce were singularly few, owing to the rarity of railways and want of good roads. Beaufort, Wilmington, Charleston and Savannah on the Atlantic coast, and Mobile, New Orleans and Galveston on the Gulf of Mexico, were the chief points in easy communication with the interior. The ports of Florida were of little use for importation or exportation. The only neutral frontier was that between Texas and Mexico, and shipments of arms were made on some scale to the Mexican port of Matamoras. In the British island groups of Bermuda and the Bahamas and the Spanish island of Cuba were bases from which neutral vessels could attempt to run the Northern blockade and reach the Southern ports.

The blockade was by far the vastest naval operation attempted down to the date of the Civil War. By proclaiming it, the United States Government did in effect admit that a state of war existed. If there is no state of war, no naval Power has the right to interfere with the commerce of neutrals outside its own waters. The Northern Government, however, took the view that the struggle with the South was a purely domestic affair, and complained that the British Government was guilty of an unfriendly act because on May 13, 1861, it issued a proclamation of neutrality. Good United States authorities writing long after the war agree that this action was necessary and in no way hostile.²

By accepted custom of naval war a blockade to be binding must be effectively maintained by adequate forces. Against the British blockade of the coast of France and the countries under Napoleon I's influence during the Napoleonic war, the United States Government had repeatedly protested, and because its protests were not heeded, had declared war on Britain in 1812, on the main ground that the blockade was a paper one, and not effective. Now in this stupendous business of blockading the South, the United States naval forces were quite insignificant. There were not more than a dozen efficient vessels available at the outset, and though the

¹ Pollard, *Lost Cause*, p. 133.

² Soley, *Blockade and the Cruisers*, p. 30.

United States Navy was rapidly augmented till in 1865 it included 671 vessels (of which sixty-two were armoured) manned by over 50,000 men, the process of expansion was necessarily slow, despite the extreme energy shown by the Northern Navy Department.

Thus for a year the blockade was a paper one, and its enforcement was the more uncertain because many of the vessels bought by the United States and armed were of indifferent sea-keeping quality. They included such craft as ferry boats, and indeed almost any kind of vessel which could steam. Great skill and courage were shown by Northern officers in cruising close inshore with such vessels; yet the maintenance of the blockade would probably have been impossible but for the large number of points seized by the North on the Southern coast, which were gradually used as advanced naval bases.

The first act in the war had been the attack by the South upon the small United States garrison in Fort Sumter, at the entrance to the port of Charleston, on April 12, 1861, followed by the capitulation of the Fort on April 13. After this position had been lost, however, point after point on the Southern coast was seized by the Northern forces. Key West off the south of Florida was in their hands when the war began. In August, 1861, they secured Hatteras Island¹ on the North Carolina coast; in September, Ship Island, near the mouth of the Mississippi; in November, Du Pont reduced Port Royal, near Savannah; in February, 1862, Roanoke Island was captured by a conjoint expedition; in March, Fernandina and St. Augustine's in Florida; in April, Beaufort in North Carolina, Fort Pulaski (near Savannah), and New Orleans; in May, Norfolk in Virginia and Pensacola in Florida.

At only one point, Port Royal, was there serious fighting in these enterprises against the Confederate coast, and the capture of Port Royal is of some tactical importance because it is one of the rare cases in which ships vanquished forts. The works defending the two mile wide entrance to Port Royal were two in number, Fort Beauregard to the north, and Fort Walker to the south on Hilton Head Island. They mounted between them forty-one guns, of which twenty-two were only old smooth-bore 32-pounders, or yet smaller and feebler weapons, with a scanty supply of ammunition, which

¹ By a joint expedition and a bombardment carried out by ships outside the range of the weak guns ashore.

prevented much target practice. The garrison numbered 2,000 men with little discipline or training in gunnery; it had the support of four small armed steamers under Commodore J. Tatnall, which, however, were so weak in battery that they could render little service, though they were gallantly handled. The attack was made by a conjoint United States force, composed of sixteen warships mounting 175 guns under Flag-Officer Du Pont, with transports carrying 12,000 troops under General T. W. Sherman.

On November 7, 1861, Du Pont steamed up the wide channel with his ships in two columns of line ahead, to port his ten larger vessels¹ led by his flagship, *Wabash*, and to starboard five gunboats. The gunboats on passing the forts were to remain inside them and deal with the Confederate flotilla; the other ships were to turn and steam round and round in an ellipse, shelling the forts till the Confederates surrendered. The bombardment opened at 9.26 a.m. and continued till 12.30 p.m., the ships at times closing to 600 yards. The Confederates were not able to stand up to the fire, and abandoned both works in the afternoon as Northern troops were landing. The Northern loss was only 8 killed and 23 wounded; the Southern 11 killed, 48 wounded and 4 missing. The reason why these forts were so easily taken is almost certainly to be found in their defective construction, without proper traverses, and the untrained character of their garrisons.

Thus, by the summer of 1862, a year after the war began, the North was in possession of twelve advanced bases on Southern territory. The same strategy had been followed by Athens in the Peloponnesian war, when she seized Naupactus, Cythera, Sphacteria and other points on the Spartan coast. Four squadrons were employed in the blockade; the North Atlantic from the Chesapeake to Wilmington; the South Atlantic from Wilmington to the Bahamas; the East Gulf from the Bahamas to Pensacola; and the West Gulf from Pensacola to Matamoras. Watching all the main ports were inshore and offshore detachments, while behind these were Northern cruisers, on the look out for blockade runners and observing the neutral bases from which the blockade runners made their attempt to reach the South.

Off the British possession of Bermuda and Nassau in the Bahamas the Northern ships maintained a quasi-blockade.

¹ One additional vessel had parted company in a storm, but joined him during the battle. For the defences see plan III, page 16.

In the Great War considerable irritation was shown in the United States when a British cruiser squadron patrolled ten miles off New York for the possible exit of German commerce-destroyers. In the Civil War, however, United States cruisers occasionally fired at vessels within the territorial waters of the British Bahamas.

In the earlier days of the blockade even sailing vessels managed to get through the Northern cruiser lines. Thus between June, 1862, and June, 1863, ninety-one sailing ships cleared from Nassau for the Confederacy, and of these fifty-five reached Southern ports. In 1862, with the rise in the price of cotton, special craft were built or employed to run the blockade—fast steamers of 400 to 500 tons, of light draught and steaming fourteen or fifteen knots, though seventeen knots was attained in some of them. One such steamer, the *Lee*, in eleven months, during 1862-3, ran the blockade successfully twenty-two times. To make the double trip two or three times paid for the cost of ship and cargo leaving a good profit.

The sanctions of international law were strained by the United States Government to deal with this trouble of blockade runners. One of the most famous instances was that of the British mail steamer *Peterhoff*, seized en route for the Mexican port of Matamoras with a mixed cargo which included artillery harness, on February 21, 1863. She was ultimately released by the United States Supreme Court, but the contraband portion of her cargo was condemned and her owners were required to pay costs, the Court treating as immaterial the fact that the cargo was to be discharged at some intermediate neutral port. The British Government was importuned to intervene in this case and in the case of the *Springbok*, seized with a contraband cargo en route from England to the British port of Nassau in the Bahamas. It refused to do so holding that the cargo was ultimately destined for the Confederacy, and these two cases supplied precedent and authority for British action in the South African War of 1899-1902 and the Great War.¹

¹ See Hall, *Law of Naval Warfare*, p. 209, who doubts whether the United States decisions involved the condemnation of vessels en route to genuine neutral ports. Wheaton, 5th Edition, pp. 732-3; Oppenheim, ii, pp. 515-6; Hall, *International Law*, 6th Edition, pp. 669-70. The *Springbok*'s owners were placed on the United States "black list" at the date for blockade running. See *Correspondence respecting the seizure of the "Springbok"*, p. 53. Miscellaneous Parliamentary Papers, No. 1 of 1900.

On November 8, 1861, occurred an incident which caused intense friction with England. The United States cruiser, *San Jacinto* (Captain C. Wilkes) stopped the British mail steamer *Trent* in the Bahama Channel and forcibly removed from her the Confederate envoys to Europe, Messrs. Slidell and Mason. By the customs of naval war at that date it was not permissible to seize envoys on board a neutral ship, without seizing and condemning the ship herself, and this Captain Wilkes did not do. President Lincoln's Government in the end disavowed the seizure, after Queen Victoria and the Prince Consort had softened down a minatory despatch prepared by Lord Palmerston. The envoys were released, though their capture would have been in accord with principles long after laid down in the Declaration of London (1909), and upheld by Great Britain in the Great War.

After a considerable lull, operations against the Southern coast were resumed by the United States forces. In early 1863 an attempt was made to capture the chief Confederate port of Charleston, with a squadron of armoured vessels under Rear-Admiral S. F. Du Pont. The entrance to the port was defended by a series of works, some of brick or masonry and others of earth mounting in all about 250 guns; and mines were laid in it. On January 31, 1863, two small armoured vessels of MERRIMAC type which the Confederates had constructed made a sortie against Du Pont's squadron, which then consisted of wooden ships. The Confederate vessels were the PALMETTO STATE and CHICORA; they attacked and badly damaged two of the Northern vessels, and the Confederate command believed that the whole blockading squadron had been driven off its station, which was not actually the case. Du Pont's one armoured vessel, the single-turret monitor *Montauk*, was absent at the time.

She was an improvement on Ericsson's original ship, having a conning-tower above her turret; the turret was plated with eleven layers of 1-inch iron and carried one 15-inch and one 11-inch smooth-bore gun. Du Pont tested her by using her to bombard Fort McAllister, an earthwork on Ossabaw Sound, south of Savannah, on January 27, 1863. The effect on the fort was slight, and Du Pont's report stated that the monitors possessed insufficiently the power "of destructiveness as against forts, the slowness of fire giving full time for the gunners in the fort to take shelter in bomb-proofs. . . . In all such operations to attain success troops

are necessary.”¹ The *Montauk* was hit thirteen times, but was not damaged. On February 1 she again attacked with no more result though she was struck forty-six times; but on February 28 she destroyed a blockade-runner close under the fort with long range fire. Yet another bombardment was delivered by four monitors (*Passaic*, *Patapsco*, *Montauk* and *Nahant*) on March 3, in which the *Nahant*'s thinly armoured deck was struck several times and badly damaged.

Du Pont was no believer in pitting ships against forts, but he had to obey his instructions,² and in conformity with them on April 7, 1863, sent in the monitors *Weehawken*, *Passaic*, *Montauk*, *Patapsco*, *Catskill*, *Nantucket* and *Nahant* (all similar to the *Montauk*) with the armoured gun-boat *Keokuk* (protected by 2-inch iron plating with two 11-inch smooth-bores in two oval casemates). He himself hoisted his flag in the *New Ironsides*, an improved vessel of MERRIMAC type, with 4½-inch armour rolled in one thickness and a battery of two 150-pounder rifles and fourteen 11-inch smooth-bores. Her draught, however, was so great that she was not of much value for inshore work, and she was able to do little. (Details of ships and forts are in Table III).

For about an hour the engagement with the outer Confederate works was maintained; in these works seventy-seven guns were mounted, sixty-nine of which took part in the engagement, but only two of them were rifled weapons of any power (7-inch 112-pounders). The armoured ships had much the worst of matters, owing to their indifferent offensive power and defective mechanism. The *Keokuk* was so injured that she sank next day, after being hit ninety times in thirty minutes, and nineteen of these hits were on or under the water-line. A mine exploded under the *Weehawken*'s bow and damaged her slightly, and most of the monitors had trouble with their turrets, which jammed, or with their guns. Five of them were temporarily put out of action. The armoured ships were hit 411 times, and between them fired only 139 projectiles, so that they were struck very nearly three times for each round that they discharged. Their

¹ *Official Records*, I, xiii, p. 543. For this verdict, which subsequent events fully justified, Du Pont was bitterly criticised: yet his point was sound. "Ability to endure," as Du Pont wrote subsequently (*Armoured Vessels*, p. 102.) "is not a sufficient element wherewith to gain victories: endurance must be accompanied with a corresponding power to inflict injury upon the enemy."

² *Armoured Vessels*, pp. 261-2. For the defences see plan III, page 16.



PLATE 3

MONITORS "MONADNOCK" AND "PASSAIC" AT SEA: ILLUSTRATING THEIR LOW SEAWORTHINESS By F. S. Cossens
Two of these vessels, the original *Monitor* and the *Weehawken*, foundered from shipping heavy seas.
[p. 26
[see pp. 6 & 27

casualties were small, about 50, as in them offensive power had been sacrificed to security; the loss in the forts was only 3 killed and 11 wounded. The action, though a serious Northern reverse, had no effect on the war, nor did it prevent the maintenance of the blockade.

A few weeks later the two monitors, *Nahant* and *Weehawken*, engaged a Confederate armoured vessel of MERRIMAC type, the *Fingal*, which had been fitted out at Savannah and named the *ATLANTA*. On June 17, 1863, she was encountered in Warsaw Sound, but only five shots were fired at her by the *Weehawken* when she hoisted the white flag. She had run aground and could not use her guns, while the *Weehawken's* first shot (a 15-inch one) pierced the armour, wounded 16 men, and left 40 more insensible from concussion.¹

Further resultless attacks were made upon the Charleston forts on July 10 and 18, and August 17, followed by two night attacks on August 23 and 25. A force of troops was now co-operating with the monitors, attacking Morris Island and Fort Sumter, but the armoured vessels could not do much more than annoy the Confederates. Morris Island was abandoned by the Confederates on September 7, but though Fort Sumter was violently bombarded it held out. An example of the risks attaching to service in the monitors was given on December 6, 1863, when the *Weehawken* shipped several seas, as she lay off the entrance to Charleston, and sank with 4 officers and 20 men. During the next few months the Confederates made one or two daring attempts to sink Northern vessels with primitive torpedo boats.

The first such attack was made on the *New Ironsides* on August 21, 1863; the vessel employed was a little steam launch carrying a spar torpedo; but she was seen, fired on, and driven off. On October 5, this attack was repeated by a so-called *DAVID*, a cigar-shaped vessel resembling a rudimentary submarine, propelled by a steam-driven screw, with a spar torpedo forward. For action the boat was submerged till only her little squat funnel and hatch combing showed above the water. The *New Ironsides* was hit by the torpedo and slightly damaged; the *DAVID* escaped with thirteen bullet hits. An actual submarine was built in 1863 at Mobile, driven by a hand propeller, worked by eight men. She had diving rudders and tanks for submerging, but no air supply.

¹ So it is said—a strange story to those who remember the slight effect of concussion at Jutland, when hits were made on turrets.

Five times she sank or failed to return to the surface, and on most of these occasions all on board were drowned, though the boat was recovered. With a crew of volunteers, running in surface trim, she struck the wooden cruiser *Housatonic* amidships in the evening of February 17, 1864, with her spar torpedo. The cruiser went down in four minutes, drowning 5 of her men, but all in the torpedo vessel perished.

The Southern mine and torpedo experts were busy throughout the war, and despite their poor equipment secured important results, accounting in all for thirty-two vessels sunk, of which four were monitors and three armoured gunboats. Among their victims was the *Patapsco*, a monitor which on January 15, 1865, struck a mine off Charleston bar and sank in fifteen seconds with 62 officers and men.

With the growing strength of the United States naval and military forces, the ring was drawn ever closer round the South. Brazos Island in the Rio Grande was seized in November, 1863, to cut Texas off from Mexico; and Mobile Bay passed under Northern control as the result of brilliant operations by Farragut on August 5, 1864. The entrance to this bay was defended by Fort Morgan, mounting thirty-five heavy guns placed close to the eastern side of the channel, which was narrow. A second work of minor importance, Fort Gaines, commanded the shoal water to the west of the entrance.¹

Across the deep water channel the Confederates had laid a double row of mines, leaving only a narrow passage 300 feet wide for blockade-runners, close under Fort Morgan. They had also available the most formidable armoured vessel which was ever built in the Confederacy in the *TENNESSEE*. Similar to the *MERRIMAC* in type, she had armour 5 to 6 inches thick and a battery of two 110-pounders and four 95-pounder rifled guns. Her defects were her weak engines, her unprotected steering gear, and the inexperience of her crew. She was commanded by Admiral Buchanan, who had already won fame in the *MERRIMAC*.

Of Farragut's squadron four were armoured vessels of monitor type—two of them (*Tecumseh* and *Manhattan*) carrying two 15-inch smooth-bores apiece in one turret, and two (*Winnebago* and *Chickasaw*) four 11-inch smooth-bores apiece in two turrets. He had also fourteen wooden ships of the old pattern, including his flagship, *Hartford*. His force

¹ See plan II, page 14. Details of ships in Table IV.

mounted in all 159 guns with a total weight of metal of 14,246 pounds. The wooden ships were prepared for action, by disposing cables along the exposed side, building sand-bag barricades, and placing sandbags on the deck. Top hamper was removed and spars were sent ashore. As at Port Hudson, Farragut ordered that the wooden ships should be lashed together in pairs, the larger and stronger vessel to starboard on which side the fire of Fort Morgan would have to be encountered. The monitors were to lead, the *Tecumseh* (Commander T. A. M. Craven) first, steaming slowly in single line; then followed the unarmoured ships, the *Brooklyn* at the head of them, with a gunboat lashed to her, and astern of her the *Hartford* with Farragut, who took up his position in the rigging.

At 6.45 a.m. of a glorious sunny day the *Tecumseh* fired the first shot; ten minutes later the Confederates opened, and about the same time the great sloping hull of the TENNESSEE was seen moving slowly on the other side of the line of mines, accompanied by three Confederate gunboats. She placed herself so as to rake the gap through which the Northern warships must pass. As those ships approached the gap the wooden vessels gained upon the monitors, and this caused some confusion.

Craven with the *Tecumseh* at first steered to pass on his left the red buoy which marked the eastern limit of the mine-field; then, apparently thinking it impossible with his heavy awkward vessel to make the sharp turn that would be required if he continued on his course, and perhaps also anxious to engage the TENNESSEE, he steered the *Tecumseh* deliberately across the minefield and headed straight for the TENNESSEE. There was a heavy muffled explosion and a great surge of water; the *Tecumseh* rose, lurched to port, rolled back to starboard and sank by the bows in thirty seconds, taking down with her 93 officers and men out of 114. In that moment of disaster Craven and the pilot met at the escape from the conning tower, through which only one at a time could pass, and, faithful to the great law of the sea and the call of discipline, Craven made way for his inferior, with the words, "you first, sir." The pilot was saved, but Craven went down with his ship.

The Northern Squadron about this time fell into some confusion. The other monitors, passing up close under Fort Morgan, obstructed the wooden ships, and both the *Brooklyn* and *Hartford* had to stop. Farragut ordered the

Brooklyn to go ahead, but received from her the answer, "torpedoes" (the word was then used for mines). This was the crisis of the action. "In this extremity," says Farragut's biographer, "the devout spirit that ruled his life . . . impelled him to appeal to Heaven for guidance, and he offered up this prayer, 'Oh, God, Who created man and gave him reason, direct me what to do. Shall I go on?' And it seemed as if in answer, a voice commanded 'Go on!'" With the words, "Damn the torpedoes," Farragut ordered the *Hartford's* engines to full speed, and passed the *Brooklyn* heading over the minefield, while beneath his flagship's hull the mines grated and their primers snapped. They did not explode and now Farragut was inside the minefield, and at once turned on the *TENNESSEE*. The line behind him regained order and the rest of his squadron safely passed the Fort. A sharp encounter with the *TENNESSEE* followed in which the Southern vessel was driven to take shelter under the guns of Fort Morgan. Two of the three Southern gunboats were quickly disposed of.

After a short rest, the *TENNESSEE* renewed the action. Repeated attempts to ram her were made by the wooden ships without much success, but when the three surviving monitors assailed her, their fire did her much damage though no projectiles came through her armour. Buchanan's leg was broken by a piece of metal driven inboard, and about 10 a.m. the *TENNESSEE* displayed the white flag. She surrendered because her steering gear had been put out of action, several of her port-shutters jammed and her guns rendered useless. Her loss was only 2 killed and 10 wounded, though she had been continuously pounded. The casualties in Farragut's squadron were 145 killed or drowned and 170 wounded. The total Confederate loss was 12 killed, 20 wounded, and over 127 unwounded prisoners taken by Farragut.

With the Northern warships commanding their communications by water, the forts at the entrance to Mobile Bay fell before military attack, delivered by a force of troops under General Granger. Fort Gaines, west of the entrance to the Bay, surrendered on August 7; Fort Morgan, bombarded from sea and land, held out till August 23. Mobile itself did not fall till 1865, and before it was captured the United States Navy lost several ships from mines, among them the monitors *Milwaukee* and *Winnebago*. The engagement once more showed that a determined commander can run past forts,

provided a clear channel is left for his ships and provided that when beyond the forts, arrangements can be made for providing him with fuel and supplies. Farragut here had the support of a land force, and the mines of that date were weak and uncertain.

In December, 1864, the North occupied Savannah, so that by the close of 1864 the South had only two ports left, Wilmington and Charleston. The approach to Wilmington was defended by Fort Fisher, a strong work on a sandy spit. A large Northern naval force under Rear-Admiral Porter, supported by 6,500 troops under General Butler, was detailed to effect its capture. An unsuccessful attempt to put it out of action was made on the night of December 23-24, by exploding close to it a vessel with 235 tons of powder on board. This was General Butler's scheme, but it only wasted valuable explosive without doing the slightest harm to the fort. The works were then bombarded by the numerous ships, including five armoured vessels, without any result except considerable loss to the ships, mainly from the bursting of guns. No assault was delivered, as Butler considered that the fort was not sufficiently damaged for it to be stormed.

A second and more determined attack was made in January, 1865, General Terry having replaced Butler in command of the troops. There was a shortage of ammunition in the fort so that it could not effectively reply to the warships during their prolonged bombardment, which began on the 13th and continued all the 14th and the morning of the 15th. At the favourable moment the assault was to be delivered by the troops and by a force of 2,000 sailors and marines who had been landed. The bombardment rose to the topmost pitch of violence at 3 p.m. on January 15; the whistles in the fleet blew a long blast, and the two assaulting columns moved out to storm the works. After a long and sanguinary struggle, in which the sailors were repulsed, the fort was carried at 10 p.m. In the first attack the casualties were: Federals, 20 killed and 63 wounded; Confederates, 6 killed, 52 wounded. In the second attack, the casualties in the Federal troops were 691, and in the naval forces (apparently including those killed or wounded on board ship), 74 killed, 289 wounded and 20 missing. The Confederate loss was about 700 in a force which began action 2,500 strong. In this affair the fleet had abundant supplies of ammunition, while the fort had only 2,300 rounds for its forty-four guns,

and insufficient men to work the weapons mounted. None the less the task of the ships was brilliantly performed, and the 20,000 projectiles which they fired rendered the fort ripe for assault.

North-eastward of Wilmington and Fort Fisher was the deep inlet of Albemarle Sound, running far into the state of North Carolina and enabling the Federals, if they controlled it, to threaten the rear of the Southern army before Richmond. To command this stretch of water the South constructed an armoured ship of MERRIMAC type, the ALBEMARLE, armed with two 100-pounder rifled guns. On April 19, 1864, she had an encounter with two Federal gunboats and drove them off; and on May 5, in a second engagement, this time with four Federal gunboats, one of which was armed with a spar torpedo, she had much the best of matters.

An attempt to destroy her with floating mines failed signally. Finally she was attacked by a steam pinnace under Lieutenant W. B. Cushing, armed with a spar torpedo in the night of October 27-28, 1864. She was then lying in the Roanoke River. Cushing's boat was seen and fired upon; the ALBEMARLE had further been protected by mooring timber about her; but none the less Cushing succeeded in forcing his little vessel to jump the timber and exploded the torpedo against the armourclad's side. The ALBEMARLE sank at once, but the pinnace was also put out of action. Cushing escaped by swimming and of his most gallant crew, 13 were taken prisoners and 1 was drowned.

The total number of prizes brought in by the Northern cruisers during the blockade was 1,149, of which 210 were steamers. In addition 355 vessels, of which eighty-five were steamers, were burned or sunk or driven ashore, so that 1,504 vessels of all kinds were disposed of.¹ No fewer than 478 claims for illegal seizures of British vessels were submitted to the Washington Mixed Commission, and the damages claimed amounted to £19,200,000. The Commission awarded only £380,000 for 181 ships. In the defeat of the Confederacy the blockade played a part which can scarcely be exaggerated, as it reacted at every point upon the efficiency of the Confederate armies.² "The relentless and almost uniformly successful operations of the Navy," says Professor

¹ Soley, p. 44.

² J. E. Johnston, *Narrative*, p. 279; Pollard, *Lee*, p. 152.

J. C. Schwab, "have been minimised by the, at times, more brilliant achievements of the [United States] Army," and he ascribes to the Navy "the larger share in undermining the power of resistance of the South."¹

From the earliest days of the war the Confederate Government recognised the importance of diverting the attention of the Northern Navy, and with that object in view, determined to attack the large and vulnerable shipping of the United States. It had for the most part to buy vessels for these operations abroad, but at that date this was not illegal, as there was no clear ruling of international law forbidding the supply by a neutral to a combatant of vessels capable of being put to naval uses, especially if such vessels had not their armament on board. The first Southern cruiser was the 437-ton steamer *SUMTER*, bought in the United States and commanded by Commander R. Semmes. Putting to sea in June, 1861, she made in all eighteen prizes, of which eight were released and one recaptured, before she was driven into Gibraltar in January, 1862, where she found herself watched by three Northern cruisers. As there was little chance of escape and she was in bad order Semmes sold her.

Next came the *FLORIDA*, a steamer built in England and armed and equipped at a desolate island in the Bahamas. She cruised from September, 1862, to October, 1864, and with her tenders took thirty-seven prizes. Like all the Southern commerce destroyers, she had great difficulty in obtaining coal, and like all of them, she relied chiefly upon sail power. On October 7, 1864, when she was anchored in the neutral port of Bahia, Brazil, she was attacked and captured by the United States cruiser *Wachusett* (Commander N. Collins). She was then towed off despite Brazilian remonstrances. This act was a violation of neutral rights, but there have been several instances in the history of naval war of a similar procedure when there was reason to fear that an antagonist could evade the restrictions imposed by a neutral.² The United States Government ultimately ordered the *FLORIDA* to be restored to Brazil, when the Northern engineers in charge of her designedly admitted the water while she was lying at Hampton Roads, and she foundered.

¹ *Confederate States of America*, p. 236.

² Cf. the Japanese action against the *Rieshitelny* (p. 215) and the British action against the *Dresden* (ii. 65).

The GEORGIA, another commerce destroyer, bought in Scotland, was a vessel of 600 tons, but of defective sail power. Putting to sea in April, 1863, she cruised with slight success till May, 1864, when she was sold to a British purchaser. In August she was seized by the United States cruiser *Niagara* off the Portuguese coast and condemned on the ground that a belligerent warship cannot change hands in time of war. Her owner recovered £6,000 insurance on her. She only took nine prizes.

By far the most famous of the Southern cruisers was the ALABAMA, a steamer of 1,016 tons with good sail power and capable under steam of $11\frac{1}{2}$ knots. The attention of the British Government was drawn to her before she put to sea, but none the less she was allowed to go out on July 29, 1862. She steamed to the neighbourhood of the Azores where Captain R. Semmes, ex-commander of the *Sumter*, took her under his orders and commissioned her at sea on August 24, 1862. She cruised for two years, taking up a position on one of the main trade routes and remaining there six or eight weeks, when Semmes moved on, just as Northern cruisers approached his station. He calculated carefully the time which it would take for the news of his whereabouts to be received at Washington. Approaching the Texas coast on January 11, 1863, he engaged and sank the Northern armed river steamer *Hatteras* with a loss of 1 of his crew wounded and 2 killed in the *Hatteras*. Then he proceeded to South American waters, where he made numerous captures, and infringed the neutrality of Brazil by using the islet of Fernando Noronha as a base.

Going east, he executed repairs at Capetown, crossed the Indian Ocean, and refitted on the coast of Cochin China, returning westwards to Cherbourg, which port he reached on June 11, 1864. During his two years' cruise he coaled repeatedly in neutral ports, but at that date the question of coaling had not been regulated by international law or naval custom.¹ He took in all sixty-eight vessels, of which only one was a steamer, and also sank one small warship. The United States cruiser *Kearsarge* (Captain J. A. Winslow) then at Flushing, was at once ordered to deal with him, and on June 14, 1864, that ship arrived at Cherbourg, ran into the

¹ By an order of January 31, 1862, the British Government forbade any belligerent ship to coal at a British port till after three months had expired from the date when she last coaled in British waters. United States war vessels broke this British regulation in nine cases; Confederate ships in three.

port, ran out again, and cruised in the offing, ready to deliver battle. Semmes was quite prepared to fight.

The *Kearsarge* was protected for action by fastening spare chain cables for a distance of 50 feet amidships in the wake of the engines. This improvised belt was only 6 feet wide and had been fitted a year earlier. On June 19, about 10 a.m. the ALABAMA came out, accompanied by the French armoured ship, *Couronne*,¹ whose mission it was to see that the encounter did not take place in French territorial waters. The engagement opened ten miles from the shore, each ship employing her starboard broadside, and as each attempted to rake the other the two revolved round a common centre but steamed in opposite directions. Since the current carried them south-west they described a spiral with seven loops. The ALABAMA fired first at 10.57 when a mile from her antagonist; the *Kearsarge* closed till she was 900 yards away when she opened with her starboard broadside, and the range quickly fell to about 700 yards, or 500 at the close.

The *Kearsarge's* gunnery was much superior, owing to the fact that the ALABAMA's powder and fuses had suffered from her long cruises in hot climates. Thus none of the ALABAMA's projectiles went through the *Kearsarge's* chain mail, though three hit there, while the ALABAMA herself was repeatedly struck on the water line and began to fill. Just after noon the ALABAMA hoisted the white flag, but through some mistake the *Kearsarge* fired a few more shots. At 12.50 the ALABAMA sank by the stern; over 60 of her crew were saved by the British yacht *Deerhound* at Captain Winslow's request, as nearly all the *Kearsarge's* boats had been damaged; the *Kearsarge* rescued 70 men, 3 in a dying condition. The following is a comparison of the ships:

	Tonnage (old measure)	Knots.	Guns.	Broad- side.	Crew.	Casual- ties.
<i>Kearsarge</i>	1,031	12	7	366lb.	163	3
ALABAMA	1,016	11½	8	305lb.	149	40

The *Kearsarge* fired 173 projectiles from her guns, which were all smooth-bores except one 30-pounder muzzle-loader.

¹ See report of Captain Penhoat of the *Couronne* on the action in *American Historical Review*, October, 1917.

Of these shells forty were estimated to have struck the ALABAMA. The ALABAMA fired 370 projectiles, hitting the *Kearsarge's* hull fourteen times and the masts or rigging about fourteen times. As her shells almost uniformly failed to explode, it was virtually an encounter between a vessel equipped only with solid shot and another with effective smooth-bore shells. The ALABAMA's gunners had had little or no target practice, and it was noted that during the action they steadily improved in shooting. The ALABAMA's loss was officially reported by Semmes, who survived the battle, at 9 killed, 10 drowned and 21 wounded, but his figures for killed and wounded are believed to have been below the correct ones.¹ Of the *Kearsarge's* casualties only 1 died. Such were the striking results of good gunnery and the effective protection it gives with a disciplined crew of excellent material. The *Deerhound* proceeded to England with the Confederates she had rescued, and the British Government refused to surrender the men on the ground that she had acted at Winslow's request. It was undoubtedly correct in this attitude, as is now accepted by good United States authorities.²

Of the other commerce-destroyers, the RAPPAHANNOCK never got to sea, and the SHENANDOAH, beginning her cruise in November, 1864, did little but destroy Northern whalers. She made thirty-six prizes, most of them in Behring's Sea, and, returning to Europe when the war was over, was surrendered by the British Government to the United States.

The total captures of Northern ships by the Southern cruisers were 261, of which 259 were sailing vessels valued with cargoes at 17,900,000 dollars (or about £3,400,000 at the rate of exchange then obtaining). The consequences to United States shipping of this warfare against commerce were serious, though they were complicated by the change from wood to iron as the material from which ships were built and from sail power to steam power, which was beginning about this date, and also by the withdrawal of United States subsidies to the American Merchant Marine. The sales of Northern shipping to foreigners were in 1860 before the war, 17,418 tons; they rose in 1861 to 26,649; in 1862 to 117,756 tons; in 1863 to 222,199; in 1864 to 300,865; and in 1865 were 133,832 tons.

¹ They are higher than the figures given by Penhoat, however, which are 2 drowned, 6 killed, and 16 or 17 wounded.

² Soley, p. 210.

The deep sea tonnage of the United States Merchant Marine shrank from 2,496,000 tons in 1861 to 1,387,000 in 1866, but certainly some part of this shrinkage was due to economic causes, and it has been argued that those causes account for the greater part of it. By 1865, the naval threat to United States shipping had vanished and the Confederacy was at its last gasp, but the sales still went on. It is therefore untrue to say that the Civil War destroyed the United States merchant marine. All that it did was to accentuate the decay which was already in process in 1861. Probably the rapid opening of the West drew off the adventurous material, which from 1830 to 1860 had sought a career in the merchant service.

The methods employed by the United States Navy Department in protecting commerce have been severely and justly criticised. A dozen United States cruisers of respectable speed, watching the important ocean points, would probably have stopped the Southern war against commerce or rendered it entirely ineffective. Southern officers expressed their surprise that, when the United States had a powerful fleet, as it had by 1863, it yet allowed a few weak Confederate vessels to cruise at will and attack its commerce at the very points where any intelligent naval officer would know that merchantmen were likely to be encountered, and where, therefore, Northern cruisers should have been at hand.

The sea is no doubt immense, as the British people learnt when the *Edmen* was attacking British shipping, but Washington seems only to have sent one cruiser, the *Vanderbilt*, in search of the ALABAMA, and if it maintained in the West Indies a flying squadron, that squadron proved ineffective. At that date there was no cable system or wireless, but had a few of the important strategic points been watched, the ALABAMA could never so long and so successfully have pursued her career. The difficulty of coaling United States ships without well equipped bases could certainly have been overcome by American resourcefulness, as it was by Rojestvensky with his indifferent fleet forty years later.

In 1861-5 there were vast stretches of African and South American coast where there would have been no one to observe or interfere with United States ships, refuelling from merchantmen. The poverty of the South prevented it from organising such provisional bases and from sending colliers to its few feeble cruisers, and made it dependent on neutrals

for coal and supplies. Most neutrals in that period were nervous and unwilling to incur the possible hostility of the United States, especially when the war began to take an unfavourable turn for the South.

The South made repeated attempts to obtain formidable armoured ships, which would have been capable of destroying any United States vessel and breaking the blockade. It ordered at Laird's yard, Birkenhead, in March, 1862, two sea-going turret ships and rams. They were vessels of 2,750 tons, improvements upon the Danish turret-ship *Rolf Krake*, with $4\frac{1}{2}$ -inch armour on their sides and 5-inch iron on their turrets rolled in one thickness and impenetrable by any gun that existed at that date in the United States. They were each to carry four 9-inch rifled muzzle-loaders in two turrets, firing projectiles of 250 pounds. Now at that date as has been said there was no rule of international law forbidding a neutral to sell such vessels to a belligerent; and the very decisions of United States judges in earlier wars could be invoked by the British Government in favour of allowing them to depart. But under a threat from the United States that to permit them to leave would be war, these two all-important vessels were stopped and bought by the British Government for the British Navy in which for more than thirty years they figured as the *Scorpion* and *Wivern*.

The French Government, as the result of Napoleon III's personal influence and his schemes for establishing French power in Mexico, showed itself a little more accommodating to the South. Contracts for four steam cruisers and two armoured rams were placed by the Confederacy in France in June, 1863, but in 1864, under pressure from the United States Government, Napoleon ordered that these ships should be sold to some neutral Power and not allowed to pass into the hands of the Confederacy. One of the armoured ships, the *Sphynx*, was then nearly complete. Protected by solid iron plating 4 inches thick amidships and on her turrets, she carried one rifled 250-pounder in her forward turret and two rifled 70-pounders in her after turret, and steamed twelve knots. She was sold to Denmark, then at war with Prussia, but as she was not delivered till the war was over, she was retransferred by the Danes to the South.

She left Copenhagen on January 6, 1865, hoisted at sea the Confederate flag as the *STONEWALL*, and put into Corunna in Spain for repairs. Two large wooden unarmoured United

States ships, the *Niagara* and *Sacramento*, arrived off that port to watch her. On March 24, however, she steamed out to offer battle, but found that the two wooden ships refused to fight on the ground that they would have been entirely helpless against her powerful rifled guns. She crossed the Atlantic, proving her sea-going qualities, but when she reached the West Indies the war was over and she was surrendered to the Cuban authorities who subsequently handed her over to the United States. She was sold to Japan, and for many years figured in the Japanese Navy as the *Adzuma*.

Heavy claims were after the war pressed against the British Government by the United States, for alleged British remissness in allowing the *ALABAMA* and other Southern cruisers to depart and supplying them with coal. These claims were finally submitted to arbitration at Geneva, but not until the British Government had agreed to accept three rules, new in international law and not recognised at the date of the Civil War. Their acceptance, however, was in accord with the principles of right which underlie international law and with the ulterior interests of the British Empire as a great ship-owning organism.

They were as follows:

A neutral government is bound:

1. To use due diligence to prevent the fitting out, arming or equipping within its jurisdiction, of any vessel which it has reasonable grounds to believe is intended to cruise or to carry on war against a Power with which it is at peace; and also to use like diligence to prevent the departure from its jurisdiction, of any vessel intended to cruise or carry on war as above, such vessel being specially adapted, in whole or in part, within such jurisdiction to warlike use.
2. Not to permit or suffer either belligerent to make use of its ports or waters as the base of naval operations against the other, or for the purpose of the renewal or augmentation of military supplies or arms, or the recruitment of men.
3. To exercise due diligence in its own ports and waters, and as to all persons within its jurisdiction, to prevent any violation of the foregoing obligations and duties.

The court of arbitration at Geneva was composed of five judges, three of whom were appointed by neutral states and one each by Britain and the United States. Its award was

published on September 14, 1872, and it found Britain legally responsible for the loss caused by the ALABAMA, the FLORIDA, and the SHENANDOAH from the date when the last named ship left Australia. It fixed the damages at £3,510,000 which were immediately paid. No other result was probable when new rules were admitted and applied retrospectively; but down to the date of the first world war, in which these rules were of great importance, they had not been generally accepted by other maritime Powers than Britain and the United States. In the Napoleonic wars United States firms had supplied privateers and commerce destroyers to France and such traffic was not then considered illegal. In 1870, moreover, during the Franco-German war, the United States Government Ordnance Department sold considerable quantities of arms and munitions to France.

The outstanding lessons of the American Civil War are the influence which sea power at every juncture exerted on land operations, the difficulty of improvising a navy, and the need of a thinking organisation or staff. If the South had been able to obtain powerful ships early in the war, it would probably have achieved its independence, while if the North had possessed an efficient navy of modern vessels it could certainly have crushed secession at the very outset. But at a date when other navies had afloat powerful sea-going armoured ships, the United States had none.

On the tactical side the war demonstrated the inadequate fire power of the early armoured ships and particularly of the first vessels of the monitor type. Du Pont's criticisms of these craft are peculiarly instructive; yet the type was reproduced on a large scale in other navies and in the British Fleet, where such ships as the old *Devastation*, on a relatively large displacement, could perhaps in actual battle conditions fire only four heavy shells every three or four minutes. His warning that invulnerability was not sufficient to win in action was neglected. The opposite fault—great fire power without adequate defensive qualities—marked the British battle cruisers of the Great War period, and was perhaps even more disastrous. It is clearly a matter of extreme difficulty and sound judgment to hold the balance correctly between attack and defence.

CHAPTER III

Danish War of 1864—Austro-Italian War—Tegetthoff—Persano and the Italian Navy—Its Defects—The Austrian ships—Italian Superiority—Austrians off Ancona—Persano's Hesitation—An Attack on Lissa—The Italians Engage the Forts—Tegetthoff Appears—"Armoured ships Ram the Enemy"—The "Re d'Italia" Sunk—Persano Declines to Ram the "Kaiser"—The Fleets Separate—Austrian Success not Utilised—South American Operations.

WHILE the American Civil War was still in progress, on February 1, 1864, war began between Prussia and Austria on the one part and Denmark on the other. On land the Danes were at an enormous disadvantage, but at sea they had a slight superiority from the fact that their small navy (thirty-one steamers effective, mounting 386 guns) included three early armoured ships of small size. The most important of these was the ROLF KRAKE, a double-turret monitor of 1,344 tons, carrying in her two turrets two 8-inch 150-pounder muzzle-loaders, protected by $4\frac{1}{2}$ -inch iron plating.

The Danish Fleet was able with some difficulty at the outset to blockade the Prussian coast, though a weak Prussian squadron of twelve corvettes and some small craft made a respectable resistance off Jasmund in the island of Rugen (March 17) when the early Prussian rifled breech-loading gun proved its value. The Danish loss was 22, and the Prussian 13. In an action off Heligoland (May 9) Captain W. von Tegetthoff, in command of a small squadron consisting of two Austrian wooden frigates (*Schwarzenberg*, *Radetsky*) and three small Prussian gunboats, succeeded in breaking the blockade of the Elbe and Weser. His adversary, Commodore Suenson, had under him a superior force of two Danish wooden frigates (NIELS JUEL, JYLLAND) and one corvette (HEIMDALL).

Tegetthoff's ship, the *Schwarzenberg*, was set badly on fire, and the Austro-Prussian force was driven to shelter in the territorial waters of Heligoland (then a British possession), but the Danes sustained considerable damage, and they retired during the evening to their own ports to make repairs. The Austrian loss was 37 killed, 52 badly wounded, and 41 slightly wounded;¹ the Danish, 14 killed and 54 wounded.

If the Danish Navy had been able to assert an effective command of the Baltic, the Prusso-Austrian operations against Düppel and the island of Alsen would have been greatly embarrassed. But the Danes were too weak at sea to watch closely the narrow channel between Schleswig and the island of Alsen, where the main Danish force concentrated after the loss of the Danish territories on the mainland. On June 29, under cover of their powerful breech-loading artillery, the Prussians crossed the channel, and when the *ROLF KRAKE* intervened their batteries poured upon her such a fire that she was compelled to withdraw behind a sheltering promontory despite her 4½-inch plating.²

The Danish batteries on Alsen gave her only feeble support, and her failure was one more proof that warships have little chance of success against shore batteries.³ Events at Charleston had already shown that the appearance of armour had not changed that ancient principle, and if the bombardment of Kinburn had established the ascendancy of the armoured ship for a brief period, the introduction of rifled ordnance quickly restored the superiority of the gun on shore. The loss of Alsen disheartened the Danes, and on August 1, 1864, peace was signed with no further naval operations of any importance.

Less than two years passed before the peace of Europe was again broken, by the war between Austria on the one hand and Prussia and Italy on the other. The Italian aim in the alliance which Victor Emmanuel I had concluded with Prussia was the acquisition of Venice. At the end of April, 1866, the Austrian Government began slowly to mobilise its armies and to prepare its fleet for action, and Italy took corresponding measures, though she did not declare war till June 20, 1866. The operations which followed illustrate the in-

¹ *Deutsch-Dänische Krieg*, ii, p. 66.

² *Der Dansk-Tydske Krieg*, iii, p. 213 ff.

³ In an action on February 18 with Prussian batteries fought at a range of 2,700 yards, she failed to hit then, and had 3 of her crew wounded.

fluence of a strong and resolute character in naval war and the dependence of victory and defeat upon the personality of the commander and his determination to attack.

The Austrian commander-in-chief, Rear-Admiral W. von Tegetthoff, was young for a high naval command. But he had already shown his energy and decision in the action off Heligoland. He was born on December 23, 1827, and was therefore at this date not quite thirty-nine—about the same age as Nelson when he fought the battle of the Nile, and as Beatty when he was promoted rear-admiral. Farragut, the only naval officer who in the last half of the nineteenth century could be compared with him, was more than twenty years older than he at the outbreak of the American Civil War. He was entirely without that moral timidity and dread of responsibility and heavy casualties which sometimes paralyse the bravest leaders in war; and he combined with an enterprising and resolute spirit a rare degree of judgment. He appears to have been an earnest student of his profession; early in his career he had attracted the attention of the Austrian Emperor and had acted as aide-de-camp to the luckless Archduke Maximilian (later Emperor of Mexico) who had done much to develop the Austrian Navy.

The Italian commander-in-chief, Count Carlo Pellion di Persano, was a man of a totally different mould, and was sixty in 1866. His record of service, first in the Sardinian and then in the Italian Navy, was distinguished, but he was rather a diplomatist and a statesman than a fighting man. In the war of 1848-9 with Austria, in the Crimean War, and in the struggle of 1859-60 for the union of Italy he had figured with great credit. He was Minister of Marine for a short period in 1862 in the Rattazzi cabinet, and in 1865 became a Senator. He had married an Englishwoman. He was personally brave, popular for his kindness and his social qualities, but irresolute in character. The advance of years had weakened all the springs of action in him; he lacked the capacity which Tegetthoff possessed to inspire confidence in his subordinates and to stir their enthusiasm. Napoleon has said that in war nothing is worse than indecision, and this was Persano's dominant characteristic.

So rapid had been the development of armour that both Austria and Italy owned a considerable number of armoured ships. In the Italian Navy no definite tactical idea directed the design and construction of these vessels. They were bought or built at random; in those early years of armour no

one was at all certain what type would prove best for battle; indeed the history of eighteenth and early nineteenth century naval war yielded little information on this head.

The two largest ships, *RE D'ITALIA* and *RE DI PORTOGALLO*, had been built in New York; green timber had been used in their hulls and they were weak in scantling. They carried iron armour, 4-inch to 7-inch thick on their water-line and guns, and their rudders and steering gear were not protected. The *RE D'ITALIA* was armed with two 150-pounders and the *RE DI PORTOGALLO* with two 300-pounders in addition to a number of 7-inch guns. Like almost all the artillery in the Italian Fleet, these guns were of the muzzle-loading Armstrong pattern. The British Admiralty by a disastrous error of judgment had discarded breech-loaders in 1864, and most foreign naval Powers had followed its lead. Some of the disadvantages of the muzzle-loader were to be illustrated in the operations of this war.

In Persano's view it was unwise to fight without the *AFFONDATORE*, a turret-ram carrying two 300-pounder guns in two turrets behind 5-inch iron. She was a new ship on her way from England, and had not yet joined the Italian Navy; her ram projected 26 feet, and in 1866, owing to the frequent use of the ram in the actions of the American Civil War, extravagant importance was attached to this weapon. Persano, according to one of his officers, placed almost childish faith in her. Two smaller rams, the *TERRIBILE* and *FORMIDABILE*, carried 6.3-inch guns behind 4½-inch iron armour. Persano had five broadside armoured ships of about 4,000 tons in the *MARIA PIA*, *CASTELFIDARDO*, *ANCONA*, *SAN MARTINO* and *PRINCIPE CARIGNANO*, with an end-to-end belt of iron on the water-line and 4½-inch iron on their batteries amidships. Two small armoured vessels, the *PALESTRO* and *VARESE*, completed his armoured squadron of twelve ships. Behind them he had seven wooden frigates of old type, propelled by screws, carrying eight to ten 6.3-inch rifled guns apiece in addition to numerous smooth-bores; one wooden screw corvette; three paddle corvettes; and a number of small craft, gunboats, and paddle steamers used for scouting.

On paper this force was imposing, and if used with resolution it was undoubtedly capable of accomplishing much. The Italians are a seafaring people with a past of great naval achievement. But nearly all the Italian ships were new; the

guns which they mounted had for the most part been recently acquired; and the officers and crews had not been sufficiently practised in their use. Though considerable squadrons had been maintained in commission in time of peace, they had received a totally inadequate tactical training. Moreover, the navy suffered from personal jealousies and antagonisms; it had been formed by the fusion of two distinct services, the Sardinian and Neapolitan, and there had not been time to make the fusion complete. The officers for the most part were young, which is important in war, but they did not act in harmony. Of bravery there was no lack. What was wanted was staff work, leadership and skill. Nor was the Italian fleet quite so dangerous as it looked; it lacked trained engineers, and the heavy rifled guns for certain of the ships had not arrived. (See Table V for details).

The Austrian fleet included seven armoured ships, of which two, the *Erzherzog Ferdinand Max* and *Habsburg*, were without their heavy Krupp breech-loaders, which were held up by Prussia owing to the war. They were armed in consequence with ancient 56-pounder smooth-bore guns. "Send me the ships just as they are," Tegetthoff wrote when told that they were in bad order: "I will find a good use for them." In the *Ferdinand Max*, Tegetthoff hoisted his flag. The other five, *Kaiser Max*, *Prinz Eugene*, *Don Juan de Austria*, *Drache* and *Salamander*, were small broadside armoured ships with batteries of fourteen to sixteen 64-pounder breech-loader Krupps and in addition a number of old 56-pounder smooth-bores. All the Austrian armoured ships were protected by plating of Styrian iron, of excellent quality and $4\frac{1}{2}$ to 5 inches thick. The *Don Juan*, however, had not received the armour for her battery and was only plated on the water-line amidships and astern: forward she had nothing but planking. Besides these seven vessels the Austrians had a number of old wooden ships, screw propelled, of which one was an old ship of the line, five were frigates, and one a corvette; and twelve small gunboats, paddle boats, scouts and small steamers. (See Table Va for details).

By the Austrian Staff's comparison of force the Italians had in ships 1.99 to the Austrian 1; in guns 1.66 to 1; in tonnage 2.64 to 1; in horse power 2.57 to 1. All the elements of material force were against Tegetthoff. Nor could he feel quite comfortable as to his men. He had 800 Italian seamen in his fleet and numerous Dalmatians of Slav race who were

not entirely loyal. But, as was usually the case in the Austrian armed forces whether by land or sea, the men fought well and followed their officers faithfully.

On June 8, 1866, Persano was told that his task was when war came to sweep the enemy from the Adriatic and blockade them in their ports. The Italian Fleet was then at Taranto and Persano had already come to the conclusion that it would be beaten. He had not the will power needed to organise and prepare it, and he lacked moral courage to refuse to take it out till it was ready in every respect—which under his command it probably never would have been. In reply to imperative orders—for the Italian Government was already becoming dissatisfied with his constant complaints and demands—on June 25 he steamed with nineteen ships (eleven of them armoured) from Taranto to Ancona. He paid no attention to Tegetthoff and proceeded to coal his ships and exercise their gunners and engineers as in peace time. He was taken completely by surprise when, at 4 a.m. on June 27, his scout *ESPLORATORE* signalled that the Austrian Fleet was off the port. Tegetthoff with six armoured ships, one old frigate and some small craft, on receiving permission from the Austrian Commander-in-Chief by land and sea, the Archduke Albert, to go out from Pola, had at once proceeded to Ancona, chased the *ESPLORATORE* into that port, and now steamed to and fro off it for two hours, cleared for action and waiting for Persano to accept battle.

Persano's conduct was not inspiring. He went on board the *ESPLORATORE*, which was not a fighting ship, and signalled to his fleet to prepare for battle. Four Italian armoured vessels formed up as quickly as they could, but not until two hours had passed were nine Italian armoured ships ready to fight. They took up a position under the Italian land batteries outside the port, but they did nothing more; the Austrians, greatly inferior in force, were already drawing off, believing that Persano would not accept battle in the open and having no intention of risking an engagement with the Ancona forts. When taken to task for his inaction, Persano stated that he had not fought because three of his best ships (*RE D'ITALIA*, *RE DI PORTOGALLO* and *ANCONA*) were not in condition for battle.

It is a sound principle, as Napoleon has said, seeing the immense gravity of a battle, to assemble all possible forces for it and not to engage with fractions of the available strength. But in this case that principle was carried to extremes.

Tegetthoff had one ship absent yet he did not plead that as an excuse for doing nothing. Persano was much stronger in ships and guns; he was close to his base and he had every advantage of position on his side. There is no doubt that his government ought at once to have removed him from command, the more so as he was losing the confidence of his subordinates.

More and more anxiously the Italian Government pressed Persano to action, but he now wanted to wait for the *AFFONDATORE*, and asked for further instructions. Tegetthoff, it may be noted by way of contrast, never needed instructions. He was quite clear in his own mind what he ought to do, and he did it. Persano foolishly asked whether, if he found the Austrian Fleet in a harbour defended by forts such as Pola, he was to attack and risk an engagement with the land works. It was a question which his own professional knowledge should have enabled him to answer. His government told him that it was not desirable to engage forts before the Austrian Fleet was beaten—a sound enunciation of one of the first principles of naval war—but that he ought to fight the enemy and win a victory.

On July 3 the Austrians were decisively defeated by Prussia at Sadowa, but in the south the war continued, and on July 7 Persano received peremptory orders to put to sea, attack the Austrians, and secure decisive results if possible, but if Tegetthoff took refuge in Pola, not to engage the works there. He was to obtain command of the Adriatic. This was a reasonable and proper plan of campaign, but Persano paid little attention to it. He put to sea with the bulk of his fleet on July 8 and cruised towards the Dalmatian coast, making no real effort to discover where the Austrians were or to engage them. Steam tactics of a simple kind and gun drill were carried out, but there was no target practice with the new guns. On July 13, Persano returned to Ancona and declared that he must wait for the *AFFONDATORE* and for certain of the older Italian ships which had not yet joined him, before forcing battle. Depretis, the Minister of Marine, had a second opportunity of removing him from command, but did not do so, as he subsequently explained, from fear of disorganising the fleet by such a sudden change. Everyone had lost faith in him, and the Italian people were not unnaturally asking why the powerful navy which they had provided was not used with some energy.

Depretis arrived at Ancona on July 15 and conferred with

Persano's Chief of Staff, Captain Amico. A truce was known to be imminent, and before it came the Italian Government wanted to strike a sharp blow at sea, to efface the discredit of the defeat on land at Custozza. Since successful attacks on Venice or Pola were regarded as out of the question, it was finally decided to attempt the capture of the small island of Lissa. Lissa lies in the Adriatic, thirty miles from the Dalmatian mainland, and possessed old fortifications, to which the Austrians had added a few modern batteries. The works mounted in all eighty-four guns, most of them weapons of ancient type; the more modern guns were twenty 30-pounder breech-loaders, two muzzle-loaders of the same calibre, and eight 15-pounder breech-loaders. The guns for the most part were mounted high, and all the experience of previous naval wars had shown that in such circumstances ships would encounter great difficulty in silencing them. The Austrian garrison, of second-line troops, numbered 1,833 officers and men. Why Depretis suddenly altered his previous sound plan, which required Persano to deal with the Austrian Fleet and avoid an action with the Austrian forts, is not clear. His decision seems to have been a hurried one, such as that which led in 1915 to the Dardanelles operations. The Italians had no good map of the island and no accurate information about its defences.

If such an attack by ships upon land batteries was to be made, against all the warning of naval history, it was vital for the powerful Italian ships to watch Tegetthoff. Persano entirely disregarded the Austrian Fleet which was his real objective. The solitary precaution which he took against it was to order the *ESPLORATORE* to cruise on a line twenty miles north-west of Lissa, with another despatch boat patrolling south-west of the island. He put to sea on July 16 with all the armoured ships except the *AFFONDATORE* (which had not then arrived). These eleven vessels were thus organised: Rear-Admiral Vacca's division consisted of the *PRINCIPE CARIGNANO* (flag), *CASTELFIDARDO* and *ANCONA*; Persano's own division, of the *RE D'ITALIA*, carrying his flag, *PALESTRO* and *SAN MARTINO*; Captain Riboty's division of the *RE DI PORTOGALLO*, *VARESE* and *MARIA PIA*; while the *TERRIBILE* and *FORMIDABILE* appear to have been outside the divisional organisation. Vice-Admiral Albini, with his flag in the *MARIA ADELAIDE*, commanded the congeries of old wooden ships with gun-boats, despatch boats, and two transports carrying a landing force.

LISSA-1866

1.

Italian
armoured ships

Austrian
armoured ships

Sea 1 Miles 2



Kaiser
Kaiser Max, 1
Salamander, 2
Habsburg, 3
Ferdinand Max, 4
Pr. Eugen, 7
Drache, 6
D. Juan, 5

LISSA 2.

Reduced Scale

1 2 3
VACCA
Red'Italia, 9
TEGETTHOFF
6 PERSANO
7 8 9 10 11

Pr. Carignano, 1
Castelfiardo, 2
Ancona, 3

Re d'Italia, 4
Palestro, 5
Affondatore, 6
S. Martino, 7

Re di Portogallo, 8
Maria Pia, 9

Varese, 10
Albini & Convoy
Terribile, 11

Porto Karober
I^o of LISSA

Batt. Magnaremi
Ft. Georg
Batt. Zupparina
Batt. Nadpostrani
Porto Karober
Porto S. Giorgio
Battery Schmid
Porto Manego
ISLAND OF LISSA
Mt. Hum 1942 ft.
Comisa Bay

1 2 3 M.

Supposing an attack on Lissa was to be carried out, it was all important for Persano to act with the extremest energy so as to capture the island before Tegetthoff had time to appear. But not until the morning of the 18th were the Austrian forts attacked, and no effort was made to place the Italian troops ashore, so that they could take the Austrian works from the rear, when the batteries would probably have speedily fallen. The Italian armoured ships steamed in close and inflicted a considerable amount of external damage on the forts and batteries; the wooden ships, after sustaining trifling casualties, drew off. The Italian gunboats cut the cable from Lissa to the neighbouring Austrian island of Lesina and obtained for Persano the important information that a telegram from Tegetthoff had arrived just before it was cut, directing the garrison at Lissa to hold out, as he was coming to their aid. To this news Persano paid no attention. His fleet during the night remained inactive off Lissa, while the Austrian gunners worked at their batteries and put them once more into respectable order.

As the Italian deputy, Boggio, who was on board Persano's flagship, wrote: "The resistance [in the forts] is determined; the demolition of works, the dismounting of guns and the explosion of magazines have all failed to shake the spirit of the enemy." The Italian Staff was learning, what the British afterwards discovered at the Dardanelles, that it is extremely difficult to put well-planned shore works out of action permanently by the fire of naval guns afloat.

Next morning Persano was joined by considerable reinforcements, including the long-desired *AFFONDATORE*. The attack on the forts was resumed, again without decisive result though Captain St. Bon, of the *FORMIDABILE*, handled his ship with courage and closed to 600 yards of one of the batteries. She was somewhat knocked about outside her armour, and lost 3 killed and 55 wounded out of a crew of 356.¹ At night-fall of July 19 the shore works were still obstinately resisting; the Italian ships had lost in all 16 killed and 114 wounded; ammunition in several of them was running low; and the most of them had not coal for more than two days at sea. The

¹ According to Lumbroso (p. 126) there was a mutiny on board and this was not treated with firmness by St. Bon. On nearly all points in regard to Persano there is acute controversy. His subordinates, Vacca and Albini, must bear some part of the blame for his defeat.

Austrians had fired 2,733 projectiles, and though their loss was the comparatively small one of 24 killed and 70 wounded, the number of guns which could be used had fallen to about twenty-five. That night Persano ordered the landing force to disembark next day. The morning proved squally with a rough sea, but the preparations for the landing none the less went forward. The armoured ships were heedlessly scattered in order to renew the attack on the works. Such was the posture of affairs when about 8 a.m. on July 20 the scout *ESPLORATORE* came racing into view with the signal "suspicious vessels west-north-west."

On the Italian side nothing was ready. Persano's plans for battle were of a sketchy character; he had issued no orders to his subordinates other than instructions for armoured vessels to engage unarmoured ones at 1,000 yards or over, and not to use any gun under 10-inch against armoured ships outside 500 yards. Such a contingency as the appearance of the Austrian Fleet had been hardly taken into account. His dilatory, irresolute character no doubt led him to postpone everything to the last moment; as one of the critics of Bazaine has said, there are men to whom it is positive agony to make up their mind and give a definite order. Persano's chief aim, like that of all weak men, was to avoid responsibility. Now he ordered the armoured ships to join him and form up. The *FORMIDABILE* withdrew short of ammunition, steaming off to Ancona to make good the damage she had sustained in the action with the forts,¹ and left him with nine armoured vessels since the *TERRIBILE* and *VARESE* were some miles away to the south. The nine slowly got into line abreast. Persano about 9 a.m. turned his force into line-ahead, the orthodox battle formation.

Tegetthoff was well aware of his own artillery weakness. To make up for it, so far as was possible, he had practised his gunners at firing complete broadsides in one salvo, the guns being so calibrated by marks on the decks as to deliver all their projectiles at one point on the target. He meant to force a *mêlée* and, if possible, to use the bows of his ships (for his armoured vessels were not constructed with rams) on his opponents. He put to sea from Pola at 1.30 p.m. of July 19, and his order of sailing was his order of battle to avoid elaborate manœuvres in the presence of the enemy. This was also in accord with Nelson's teaching. In his final battle plan our great admiral laid down that "the order of sail-

¹ Lumbroso denies the damage was serious, pp. 126-9.

ing is to be the order of battle." The Austrian Fleet was in three divisions, each formed in a wedge-shaped line, the seven armoured vessels leading with his flagship at the apex of the wedge. Then came seven large wooden ships in a similar disposition, with the old vessel of the line, *Kaiser*, under Commodore Petz at its apex; and behind this again a third division of small craft under Commodore Eberle. That evening Tegetthoff conferred with his staff and issued orders that if he fell the flagship should continue to lead. The various captains were informed of his intentions and were instructed to support one another and use the ram. His old wooden ships were to attack one or other extremity of the enemy's line.

In the morning of the 20th, vessels of the Italian Fleet were sighted about 7, when a squall came on and blotted out everything. Tegetthoff, though the weather was such as to hamper the working of the guns in his smaller armoured ships, held on his course; signalled "close up," and "full speed" (which was probably about nine knots); and at 10.35 as the Italian Fleet came into plain view, "armoured ships ram¹ the enemy and sink him." He had intended also to signal, "this must be the victory of Lissa," but the fleets had closed before the necessary flag hoists could be made.

His aim was battle, as close and as decisive as possible, and his dispositions were based on his insight into Persano's character. Against a skilful and resolute officer with a fleet of such material power as the Italians possessed, Tegetthoff's tactics might have cost him very dear, as was seen when the Chinese Admiral Ting adopted a similar formation against the Japanese at the Yalu. The ram is a dubious weapon, yet it is worth noting that in the destroyer mêlées of the war with Germany British destroyer officers generally attempted to use it; and the artillery of 1866 was not sufficiently powerful or rapid in fire of itself to produce decisive results against armoured antagonists. The onslaught that Tegetthoff meditated by its very character and suddenness was calculated to cow and confuse an irresolute opponent. The strong and determined leader had no reason to fear action, however close in days before torpedoes, and, perhaps has not even in the conditions of to-day.

As the Austrians came into view steaming straight at the

¹ *Anrennen.*

Italian line, Persano in the RE D'ITALIA was seized with an unlucky idea. At the last moment he stopped his flagship, throwing his line-ahead formation into disorder and opening a huge gap in it, and transferred his flag to the AFFONDATORE. He could not have made a more disastrous mistake, as no one in the fleet knew what had happened or where to look for orders and signals. At the crisis he ceased to lead, and thenceforward had little influence on the battle. The Austrians were ably commanded; the Italians were not commanded at all.

About 10.50 a.m., Tegetthoff's group of seven armoured ships reached the gap in the Italian line, astern of Vacca's three armoured vessels, which formed the Italian van. Vacca turned his ships to port to attack the Austrian rear, and four of Tegetthoff's armoured vessels, with Tegetthoff himself in the *Ferdinand Max*, countered this move by also turning to port and engaging Vacca, while, the other three engaged the Italian centre, and Petz, with the Austrian wooden vessels, boldly assailed the Italian rear. The smoke was dense as the two fleets came into contact and there is doubt as to the identity of the vessels which engaged one another. The Italians were easily distinguishable. They were painted a light grey and the Austrians black.

Baron Sterneck, commanding the Austrian flagship, *Ferdinand Max*, to get a better view, conned his ship from the shrouds, as Farragut had done at New Orleans. Having passed through the Italian line, Tegetthoff turned to port. He made two attempts to ram, striking the PALESTRO and RE D'ITALIA at too acute an angle to do them much damage, but a shell fired by one of the Austrian ships exploded in the stern of the PALESTRO and started a dangerous fire in her ward-room. The PALESTRO steamed out of the line to put out the fire with dense smoke pouring from her; about the same time the RE D'ITALIA's steering gear was disabled, and the Austrian armoured vessels closed round her.

At 11.20 Captain Count Faa di Bruno found his ship the RE D'ITALIA with an Austrian vessel, perhaps the *Don Juan*, directly ahead of her, and at that moment saw the *Ferdinand Max* steaming towards him to ram. If Faa di Bruno had resolutely gone ahead, even though his steering gear was out of order, he had a chance of escape and perhaps of sinking an enemy. But though a most gallant man, he shrank from using his ram and actually ordered the engines full speed



PLATE 4

THE "RE D'ITALIA" SINKING AFTER BEING RAMMED BY TEGETHHOFF'S FLAGSHIP THE "FERDINAND MAX,"
Illustrates the general appearance of battleships in 1866.

astern.¹ The RE D'ITALIA was almost motionless on the water when the *Ferdinand Max* struck her amidships over the engine room, at a speed of $11\frac{1}{2}$ knots, as Sterneck only stopped the Austrian ship's engines 200 feet from the Italian vessel.

The stem with a dreadful crunch cut through the iron plating and wood backing of the Italian ship, forcing her to starboard, the opposite side to that on which she had been rammed. The shock was severe in the *Ferdinand Max*, but the damage to the Austrian flagship was small. Tegetthoff's vessel backed out; the RE D'ITALIA lurched back to port, showing her deck plainly to the Austrians in the *Ferdinand Max*, and then sank with her flags flying and her crew cheering, triumphant in death at the thought, "Venezia e nostra" —"Venice is ours."

Tegetthoff was filled with compassion for the brave men whom he saw perishing under his eyes though he could do little to help them. The Italian armoured ship ANCONA attacked him and endeavoured to ram, exchanging a heavy fire with him, but with so little result on the part of the Italian gunners that it was afterwards concluded their muzzle-loader guns had not received projectiles—an omission possible in the hurry and excitement of battle with such weapons. Several minutes of confused fighting followed between the Italian and Austrian armoured ships, but no further grave damage was done on either side. Meanwhile Persano had been steaming about in the AFFONDATORE, making signals to which his captains paid little or no attention, and from time to time endeavouring somewhat half-heartedly to ram.

The Austrian wooden ships were in action with the Italian armoured ones, and the *Kaiser* boldly attempted to ram the RE DI PORTOGALLO, but was so much injured that she had to withdraw with a dangerous fire amidships. Albini, with the Italian wooden vessels, remained aloof from the combat; he was content to look on. Soon after the *Kaiser* had withdrawn, Persano appeared near her in the AFFONDATORE and three times tried to ram her. At the third attempt he had her at his mercy, when he deliberately turned away. He subsequently explained that he did not think it proper to attack a helpless enemy, and was afraid of damaging his own ship. Yet her destruction would have gone far to compensate for the loss of the RE D'ITALIA, and his excuse is only one more

¹ He is said to have been an advocate of boarding Lumbroso, pp. 142-3

indication of his total unfitness to command. If she was helpless, his business was to require her immediate surrender; if she still flew the Austrian flag, to sink her there and then.

The battle was over at 12.10 p.m., when such vessels in the two fleets as were still fit for action formed up in line, Austrians to the north and Italians to the south. Persano signalled "general chase," "closer action," and "the ship which is not in action is not in her station," but he had no real inclination to renew the battle. Tegetthoff, differing in this from a Nelson, was quite content with what he had done. The ram had proved uncertain of employment; his guns were too weak to effect much against the Italian armour; and he was still inferior in force, with seven armoured vessels against eight. At 2.30 in the full view of both fleets, the hapless PALESTRO blew up and in her all of her crew, save 23 officers and men, perished. They had gallantly refused to be taken off and stood by her to the last with magnificent courage and determination. Her magazines had been flooded, but a large number of live shells in one compartment had been overlooked, and when the fire reached them, she disappeared in smoke and flame. Thus in a strict sense the battle of Lissa was indecisive, for at dusk the two fleets still confronted one another; and Tegetthoff did not use to the full the great initial success which he had gained.

The Italian losses were 381 killed in the RE D'ITALIA and 231 in the PALESTRO; in the other ships they were only 8 killed and 40 wounded. From the RE D'ITALIA 168 officers and men were saved, and from the PALESTRO, 20. The Austrian loss was 38 killed and 138 wounded, but in the armoured ships only 3 were killed and 30 wounded. Two Italian armoured ships (RE D'ITALIA and PALESTRO) were sunk in battle, and the AFFONDATORE afterwards went down in Ancona harbour, probably as the result of damage she had sustained. None of the other armoured ships on either side was seriously injured. The seven Italian armoured ships which were most hotly engaged fired 1,452 projectiles, but shot too high; the seven Austrian armoured vessels fired 1,386 and in all the Austrian fleet discharged 4,556 projectiles (most of them of too small calibre to be effective) and sustained 412 hits.

On July 21 the Austrian Fleet was still off Lissa and the *Kaiser* was again in condition to engage. But the Italians had retired to Ancona, and the moment for following up the previous day's success had been allowed to pass. Persano,

as a Senator, was tried by the Italian Senate, and on April 15, 1867, was found guilty of negligence and incapacity, deprived of his rank, dismissed the service and sentenced to pay the costs of his trial. Albini was also removed from his command. Tegetthoff received the thanks of his Emperor, was promoted Vice-Admiral, and in 1868 was made commander-in-chief of the Austrian Navy. He died in 1871.

The effect of the battle on naval development was marked. For nearly a generation it fastened attention on the ram, and led all navies to build ships designed for end-on attack. Only with the progress of the torpedo which rendered close action too hazardous and uncertain for any but the most resolute, did this inclination towards a line-abreast formation pass.

This period was marked by various minor naval struggles. In 1864, Spain was engaged in war with Peru and despatched a squadron, consisting of the broadside armoured vessel, *Numancia* and seven old wooden ships to the Peruvian coast, where it seized the Chincha Islands (April 14) and used them as its base. In 1865, the Spanish squadron was ordered to blockade the Chilean port of Valparaiso, as Chile had shown hostility to Spain. Only one action was fought at sea, on November 26, 1865,¹ between the Chilean steamer *ESMERALDA* (seven knots, 123 officers and men, twenty 32-pounder smooth-bores) and the Spanish gunboat *Covadonga* (121 men, nine knots, two 68-pounder and one 32-pounder smooth-bores). It lasted twenty minutes, when the *Covadonga* hauled down her flag with 2 killed and 14 wounded, the *ESMERALDA* not having been touched—a result which led the Spanish Admiral, Pareja, to commit suicide.

On March 31, 1866,² the *Numancia* and four wooden ships bombarded Valparaiso. The Chileans offered no resistance and over 2,000 projectiles were fired by the Spanish ships with the result that damage to the extent of £1,600,000 was done ashore. The Spanish squadron next attacked Callao, the chief Peruvian port; there they had to deal with fortifications which mounted four 300-pounder rifles in two turrets and five 450-pounder rifles besides a number of smooth-bores in earthworks. On May 2, 1866, the Spanish squadron opened fire, but after about four hours was completely repulsed, having had two of its vessels disabled. One of these drifted out of control round Cape Horn, and was long after towed

¹ *Dos Esmeraldas*, p. 112 ff.

² *Hansard, House of Commons Debates*, May 15, 1866.

into the Falklands. The Spanish loss was reported to have been 200 killed and wounded; the Peruvian about 300. The forts were not seriously damaged, and had much the best of matters. After this failure the Spanish squadron withdrew.

In 1864, Lopez, the dictator of the republic of Paraguay, attacked Brazil and began a war in which eventually the Argentine and Uruguay joined on Brazil's side. The operations took place out on the Parana and its tributary, the Paraguay, on which river flotillas of small vessels aided the troops of either combatant. The Paraguayans only possessed nine wretched old wooden steamers; the Brazilians built numerous small monitors of about 340 tons, with 4½-inch iron on the turret and good rifled guns of the period. On June 11, 1865, the Paraguayans with their old steamers surprised nine Brazilian vessels at anchor in the Parana near the mouth of the Riachuelo, but had much the worst of matters, losing four steamers and 1,000 men against the Brazilian loss of two steamers and 200 men.

Gunboats which are not skilfully or determinedly used have always difficulty in dealing with river forts, and a single Paraguayan 12-pounder rifle delayed the Brazilians for weeks on the Parana. This may have been due in part to fear of mines, as on September 1, 1866, a small Brazilian armoured vessel, the *Rio de Janeiro*, was sunk by a mine. A poorly fortified position at Curupaity and a small minefield on the Paraguay for months barred passage to the Brazilian ships, and when one Brazilian vessel ran past upstream on February 8, 1867, the fire of the work proved too formidable for the vessel to return. Communication with her was maintained by land, by a track cut through the forest on the west of the Parana (the hostile work was on the east bank). Curupaity was finally abandoned by the Paraguayans as the result of the land operations; and in 1868 the Brazilian flotilla, aided by Argentine gunboats, attacked Humaita, a fortified position on the Paraguay, mounting 195 guns, mostly of archaic type.

Six Brazilian armoured vessels lashed together in pairs, after the plan which Farragut had introduced in his Mississippi actions, delivered the attack on February 19, 1868. Three of them got past with a loss of only 10 wounded, and the effect of their spirited move was that the main Paraguayan force had to be withdrawn northward, to the lines of Pikysyry between Angostura and Lake Ypoa. The position there was turned by the Brazilian flotilla, forcing a further retreat, till

in March, 1870, Lopez's murderous career ended with his death on the Aquidaban. It remains true that, in spite of the defects in the Brazilian command and methods, the flotilla had a decisive share in the defeat of Lopez. Its existence and superiority to the Paraguay river force enabled the Allies constantly to turn Lopez's positions.

CHAPTER IV

Franco-German War of 1870—Blockade of German Coast—Meteor and Bouvet—Spanish Civil War—Russo-Turkish War—Turkish Monitors Sunk on the Danube—Turkish Flotilla cut off—Mutiny of Huascar—Singular Action with the Shah—War between Chili and Peru—Esmeralda and Huascar—Loss of the Independencia—Battle of Angamos—Huascar Captured—Actions off Arica and Callao.

THE Franco-German struggle of 1870-71, though on land marked by operations of such military importance, saw no serious fighting at sea. The superiority of the French Navy to the fleet of the North German Confederation was too great when war was declared on July 15, 1870, to permit of a decisive battle. Against a French total of 281 war vessels, of which thirty-four were armoured, Germany had only thirty-nine, of which five were armoured; against 28,000 officers and men on the peace establishment of the French Navy raised to 76,000 in the war, Germany had only 6,204. From the naval standpoint the chief conclusions to be drawn are the impotence of even a powerful fleet against a hostile coast line which is protected by mines and tolerable defences, though in 1870-71 there were no torpedoes or submarines; and the necessity of assuring complete control of the North Sea before attempting operations in the Baltic.

The French intention before the war began was to despatch a corps of 30,000 men, who were to land in Schleswig and there join hands with 40,000 Danish troops. But French diplomacy failed to secure the alliance of Denmark, and without such support a landing had no chance of success. When war came the advance of the main German armies on land was so rapid and dangerous that France had to use for the defence

of her own territory the expeditionary force which she had originally intended to employ in an offensive against the German coast. The menace of attack from the sea was sufficient at the outset to detain the 1st and 2nd Prussian corps in Prussia and Pomerania, and half the 9th corps (the 17th division) in Schleswig—a total of over 80,000 first-line troops—in addition to landwehr units totalling about 100,000 men. As the menace vanished, the 1st corps was brought to the front, where it was in action for the first time at Colombey (August 14, 1870), and was followed by the 2nd corps, which engaged at Gravelotte (August 18). The 17th division of the 9th corps did not reach the front till September.

The German coast line was difficult of access for sea-going ships, and when the buoys had been removed and mines had been laid, there was little for the French squadrons to accomplish. They had no base of operations near at hand: Dunkirk was over 300 miles from the mouth of the Elbe; England did not permit Heligoland, which then belonged to her, to be used for coaling; and the Danish Government observed a strict neutrality. A squadron of seven armoured vessels under Vice-Admiral Count Bouët-Willaumez none the less proceeded into the Baltic and blockaded the German coast; a second squadron of eight armoured vessels under Vice-Admiral Fourichon blockaded the North Sea coast, until, in early September, it was compelled to return to the French ports for want of coal. Throughout, the German large armoured ships remained in the Jade, behind the fortifications which protected the anchorage. In the Baltic Bouët-Willaumez found the draught of his armoured ships too great for successful operations and the defences of Kiel too strong to be forced. He was then ordered to attack the German coast, though he was not to bombard open towns. He ascertained that Kolberg and Danzig were both vulnerable, but before he could carry out his instructions, he was erroneously informed that three small German armoured vessels had left the Jade and were threatening his communications. In actual fact these vessels were still blockaded by Fourichon. Bouët-Willaumez steamed to the Great Belt and learning there that there was nothing to be feared from them, returned to the Pomeranian coast, stopping trade and inflicting considerable annoyance on the Germans until September 17, when he withdrew. The blockade of the North Sea coast was maintained till the armistice was signed (on January 28, 1871) by a few French vessels, after Fourichon's main squadron had returned to

France; in December and January the work of watching the Germans was left to the smaller and faster French ships, and the French armoured vessels were stationed at Dunkirk and Brest or Cherbourg.

Only one minor action was fought, in the West Indies, between the German gunboat METEOR (Lieut.-Commander Knorr) and the French gunboat *Bouvet* (Commander Franquet) on November 9, 1870. It took place off Havana, as the result of a challenge on Commander Franquet's part.

The *Bouvet* mounted one 6.3-inch and four 4.7-inch guns and carried a crew of eighty-five; the METEOR was armed with one 6-inch and two 4.7-inch guns and carried a crew of sixty-four. The *Bouvet* opened fire at 1,200 yards at 1.30 p.m., and for the next two hours the two vessels fought continuously, circling (as the Kearsarge and Alabama had done), but inflicted uncommonly little injury on one another. The METEOR then attempted to ram; she struck the *Bouvet* at too acute an angle to do much damage, though the METEOR's main and mizzenmasts caught in the *Bouvet*'s spars in the collision, and came down. The METEOR's screw was fouled by the wreckage and the German vessel for some minutes was left helpless. The *Bouvet* was making a second attempt to ram when she was hit in her machinery and temporarily disabled; at this point the combat ended, as a Spanish warship which was watching informed the combatants that they were both in Spanish territorial waters. The *Bouvet* lost 10 men killed or wounded; the METEOR 2 killed and 1 badly wounded.

While German shipping was driven from the sea, French shipping was unmolested, except by one cruiser, the AUGUSTA, which appeared in the Bay of Biscay after coaling at an Irish port and made three prizes. She was speedily driven off, and retired to the neutral port of Vigo, whence she did not again emerge. The French captured eighty vessels and the direct loss to the Germans was estimated at £431,000; for this France was compelled to pay in the disastrous peace which she had to sign owing to her defeat on land. The blockade was said to have cost the Germans £200,000 a day by the indirect loss which it caused, but the estimate appears to be a grossly exaggerated one.

In 1873 during one of the numerous civil wars of that period in Spain, insurgents seized two armoured vessels,

Numancia and *Vitoria*, and five steamers at Cartagena, all of which were declared by the Government to be pirates. The insurgents used two of their captures to bombard Almeria, without doing much damage, and were attempting to repeat their performance at Malaga when the German armoured vessel, *Friedrich Karl*, and the British armoured vessel, *Swiftsure*, intervened and seized the two ships. Some weeks later they were restored to the Spanish Government. On October 6 the insurgents having again secured the armoured vessel *Numancia* and the cruiser *Mendez Nunez* attacked the forts of Alicante, but were driven off with considerable damage to themselves. On October 10 there was a strange engagement at sea between the Government forces under Rear-Admiral Lobo, consisting of one armoured ship (*VITORIA*) and three other vessels, and the insurgent force of three armoured ships (*Numancia*, *Mendez Nunez*, *Duque de Tetuan*) and one other steamer,¹ as the result of which the insurgents retired to Cartagena. Lobo sustained no loss, but the insurgents had 13 killed and 48 wounded. On the following day both forces again confronted one another when Lobo suddenly retreated to Gibraltar. He was dismissed for misconduct, and his successor, Admiral Chicarro, at once blockaded Cartagena vigorously with two armoured and several unarmoured ships, till it surrendered in 1874. In these half-hearted operations the most interesting feature was the interference of powerful neutrals, who did their best to prevent attacks on open towns and laid down the rules of the game.

THE RUSSO-TURKISH WAR OF 1877-78.

On April 24, 1877, Russia declared war upon Turkey, and in the struggle which followed the influence of sea power was marked. The Turkish Navy, though badly organised and corruptly administered, was far superior in strength to any force that Russia could bring against it. Serving in it was a British naval officer, Hobart Pasha, of great experience and capacity, but he was not allowed a free hand and was generally overruled. In the Mediterranean Russia had no base and no means of obtaining one; hence the Turkish command of that sea was assured. In the Black Sea, down to 1871 Russia was forbidden by the Treaty of Paris (1856) to maintain any Navy at all, and in 1877 she only possessed

¹ Chevalier, *Histoire des Flottes Militaires*, p. 467.

a couple of useless coast-defence armoured ships and a number of small craft. The Turkish Navy included fifteen armoured ships of considerable power, seven armoured gunboats or monitors for river work, and numerous small craft.

If Russia had been able to command the Black Sea, she could have threatened the very heart of Turkey, Constantinople, and have attacked at any point of the Turkish coastline, which then stretched from the Danube mouth to the Caucasus, supposing always that she had been able to organise the transport of a considerable landing force and to effect a landing. A weak force would almost certainly have failed as the Allies in 1915 failed at the Dardanelles. For an advance through Rumania (then nominally under Turkish control) and Turkish territory the Russian land communications were bad. Only one railway crossed the Rumanian frontier, connecting the Russian with the Rumanian system, and the Rumanian lines were of different gauge and poorly equipped. This single line was within easy reach of gunboats on the Danube at Galatz and Braila. The two chief Russian ports on the Black Sea, Odessa and Sevastopol, were connected with the heart of the country by railways, and ought to have been blockaded. But the Turkish Navy was handled without any strategic insight and displayed extreme caution in view of reports that the Russians had laid mines and meant to attack with torpedoes. For such attacks the Russians had purchased nineteen merchant steamers, which were mainly used to convoy or carry small torpedo boats.

There was no blockade of the Russian ports and the Turkish flotilla on the Danube did not act with any energy, or close all the mouths of that river. On May 11, the Turkish monitor *Lutfi Djelil* engaged the Russian batteries near Braila, and was hit by a high-angle projectile from an 8-inch howitzer, which must have exploded in her magazine, piercing her iron-plated deck. A great pillar of smoke rose from her and she sank in shallow water.¹ Only one of her crew of 200 was saved. On May 26 another Turkish monitor, the *Seifé*, was destroyed by four Russian torpedo launches under Lieutenant Dubassoff. They came up the river from Braila, whither they had been transported by railway, and were equipped with spar torpedoes of a primitive type. Two of these torpedoes

¹ *Daily News Correspondence of the War between Russia and Turkey*, i, pp. 62, 175-7. Other accounts give the calibre of the projectile as 6-inch, and other versions say that the ship was mined. All the reports of naval actions in the war are most untrustworthy.

were exploded in contact with the *Seifé* in the early morning after day had broken and in a storm of rain. The Turks saw the launches and opened fire at a distance of fifty yards, but too late. The *Seifé* sank with heavy loss of life. The Russian launches escaped without loss and with a single hit by one small projectile.

The next object of Russian attack was a squadron of four Turkish armoured ships lying in the Sulina mouth of the Danube. For this operation two Russian armed merchant steamers, one of them carrying six small torpedo launches, were used. The force was under Lieutenant Makaroff, and Lieutenant Rojestvensky was in charge of one of the launches. Both of these officers fought as admirals in the Russo-Japanese war. The enterprise was a complete failure. The steamers proceeded from Odessa to Sulina off which place they arrived on June 10 without being molested, but the Turkish vessels were protected by obstructions¹ and the Russian torpedoes were consequently useless. One of the launches was sunk and six prisoners (among them Lieutenant Pustchin) were captured. To prevent the Turkish warships from interfering with the passage of the Danube, which was now to be attempted, the Russians sank vessels laden with stone in the river and placed mines, so that two barriers protected a stretch of the river near Galatz. There, on June 22, the Russians began to cross in launches and boats. They met with little resistance, and quickly established themselves south of the river. The Turkish warships made no effort to interfere.

The Russians had stationed launches on the upper Danube moving them thither overland by railway, and made several attempts to disable the Turkish armoured gunboats on the river between Nikopol and Rushtchuk, without much success. On June 20, an attack with spar torpedoes on a Turkish vessel was repulsed, and the painter Verestchagin, who was on board one of the Russian launches, was wounded.² On the 23rd another attack was beaten off by a small monitor. The Russian method was to mine the Turkish vessels in and thus paralyse them, but had the Turks shown any energy the Russians would have found it most difficult to cross the river

¹ The Russian evidence seems clear on this point though a British correspondent denied the existence of any obstructions. Hobart Pasha (*Sketches*, p. 218) expressly states that he protected his vessels with a cordon of row boats and hawsers.

² *Daily News Correspondence*, i, pp. 205-6; ii, pp. 36-43. Verestchagin, ii, pp. 167-77.

as they did during these days of late June at Simnitsa. An attempt of a different kind was made in November to destroy the four Turkish armoured ships which lay at Sulina, protected by land batteries and a breakwater. Gunboats mounting nine 6.3-inch howitzers were employed. The Russian flotilla entered the Danube by the St. George mouth; ascended to the confluence of the Sulina mouth, and then dropped down towards Sulina. Above the Turkish squadron a mine-field was laid in the stream and over it the Russians attempted to lure the Turks. One Turkish vessel only, the old gunboat *Sulina*, was trapped trying to cross the minefield, and sank with 13 casualties. Otherwise the operations failed. The shooting from the howitzers appears to have been erratic. This was the last naval engagement on the Danube. Of the Turkish vessels cut off in the river, two fell into Russian hands and others were destroyed by their crews.

Various torpedo attacks were made by the Russians upon Turkish vessels in the ports of Asia Minor, with launches carried by armed steamers, under the orders of the indefatigable Lieutenant Makaroff, but, unless the Turkish accounts are false, without inflicting any loss. One of these was delivered against the armoured vessel, *Assar-i-Chevket*, at Sukhum Kale, a Russian port in Caucasian territory, which the Turks had seized, on August 24. One towing torpedo was exploded with no more result than to leave a slight mark on the Turkish ship's armour belt.¹ Another attack was made in the night of December 27-8 on a Turkish squadron at Batum, and another on the night of January 25-26, but on both occasions the Russian torpedoes failed to do any damage. Those were days before the development of machine guns² and quick-firing guns, and the Turks were without light craft, yet it is a curious fact that the Russians were able to accomplish so little, under a dashing and gallant leader such as Makaroff. They were usually unable to find the Turkish ports when these were carefully darkened.

One solitary skirmish took place at sea. On July 23 the fast armed Russian steamer *VESTA* off the coast of Rumelia was chased and attacked by the armoured ship, *Assar-i-Chevket*, of 2,000 tons and ten knots, mounting five muzzle-loader 8-inch guns (174-pounders) of which none would bear ahead.³ The *VESTA*'s battery was four small muzzle-loader

¹ Hobart, *op. cit.*, p. 227.

² Most of the Turkish ships, however, mounted Nordenfelt guns—an early type of machine gun.

³ Cf. Hobart Pasha, p. 210.

guns and five 6-inch howitzers, and her speed twelve knots. The *VESTA* was hit by two 8-inch shells, one of which killed two officers. She had the advantage in speed, and so was able to escape though she was a good deal knocked about.

ACTIONS ON THE SOUTH AMERICAN COAST, 1877-1881

In May, 1877, the crew of the Peruvian turret-ship *HUASCAR* declared against their Government, which disclaimed all responsibility for their proceedings and requested the Chilean authorities to seize the ship, if she put into a Chilean port. The *HUASCAR* attempted to levy contributions on the Peruvian seaboard and interfered with several British ships. Rear-Admiral A. de Horsey, the British commander on the station, decided in consequence to compel her surrender. She was a vessel of considerable power for her size; with a displacement of 1,800 tons, she carried iron armour tapering from $4\frac{1}{2}$ to $2\frac{1}{2}$ inches on her water line. Her single turret was protected by $5\frac{1}{2}$ -inch solid iron plates and contained two 10-inch muzzle-loading guns firing a 300-pound shell. She lay low in the water and offered an exceedingly small target, and she was fast (eleven knots) for her type. At this date she was rigged with two masts, of which the foremast was on the tripod system common in Captain Coles's early turret ships. There was a small hexagonal conning tower protected by 3-inch iron. The British ships on the station were the two unarmoured cruisers, *Shah* and *Amethyst*. The *Shah*, De Horsey's flagship, was a vessel of 6,250 tons and 16.4 knots, armed with two 9-inch muzzle-loading pivot guns firing a 250-pound shell, besides eight 7-inch 112-pounders, and four 64-pounder muzzle-loading guns on either broadside. The 9-inch gun at 1,000 yards, under trial conditions, would pierce $9\frac{1}{2}$ inches of armour; the 7-inch would pierce $7\frac{1}{2}$ inches. Neither could be expected to hurt the *HUASCAR* except at close range. The *Amethyst* was a small cruiser with a broadside of eight 64-pounder muzzle-loading guns.

De Horsey, on May 29, 1877, with the two British ships sighted the *HUASCAR* near Ylo and summoned her to surrender. When the Peruvian captain refused to give up his ship, at 3.6 p.m. the *Shah* opened fire at about 1,900 yards range, steaming rapidly to and fro, and the *HUASCAR* replied. With intervals in which the *Shah* had to suspend her fire for fear of damaging the town of Ylo, this curious action continued for about two hours, the *Amethyst* joining in whenever she had

an opportunity of doing so. At 5.11 the HUASCAR attempted to close, apparently intending to ram, and the *Shah* three minutes later discharged a Whitehead torpedo—the first ever used in action—against the Peruvian vessel. The range was too great and it proved quite ineffective. At 5.45 the engagement ended as the HUASCAR was then so close to Ylo that it was unsafe to fire at her. None of the vessels engaged suffered any serious damage; the *Shah* and *Amethyst* were not hit; and though the HUASCAR was struck sixty times, only one shell (a 9-inch one) perforated her armour, where it was $3\frac{1}{2}$ inches thick above the water line. This killed a marine, wounding an officer and 2 men, but it did not affect the HUASCAR's fighting qualities. The *Shah* fired 280 projectiles, so that her shooting was good in view of the considerable range and rapid movement of the vessels engaged. Had she closed with her far more numerous guns she ought to have been able to disable and capture her antagonist. An attempt on the part of the *Shah* to destroy the HUASCAR with Whitehead torpedoes and spar torpedoes later in the evening failed. The HUASCAR had quietly steamed off under cover of darkness, and next day she surrendered to the Peruvian Government.

On March 1, 1879, Bolivia, and on April 5, 1879, Peru declared war on Chile, in consequence of a dispute as to which of these republics should own the nitrate districts. Bolivia had no navy. Peru possessed two sea-going armoured vessels—the turret-ship HUASCAR already described, and the broadside vessel INDEPENDENCIA of 3,500 tons, plated with $4\frac{1}{2}$ -inch iron, and carrying a battery of one 250-pounder, three 150-pounders, and twelve 70-pounder muzzle-loading guns. She had recently been reboilered, and steamed about twelve knots. Peru also owned two old monitors, bought from the United States, the MANCO CAPAC and ATAHUALPA, each carrying a pair of old 15-inch smooth-bore guns but too slow and of too low freeboard to be of any use at sea. An old wooden corvette, the UNION, armed with two 100-pounders and two 70-pounders, and twelve 40-pounder muzzle-loading guns, and the wooden gunboat PILCOMAYO, carrying six muzzle-loader 70 and 40-pounders, made up the Peruvian squadrons. In addition the Peruvian Government acquired four steamers as transports and armed a number of launches with spar torpedoes.

The Chilean Navy included two much more modern ships than any of these in the *Blanco Encalada* and *Almirante*

Cochrane, launched in 1875 and 1874, and each carrying six 300-pounder 9-inch muzzle-loading guns besides smaller weapons and Nordenfelt machine guns behind armour of iron 8 inches thick, with 9-inch plate on the water-line. They steamed when clean from twelve to thirteen knots, and were rigged, but their upper yards and topmasts were landed when war came. In 1879 they were so foul from want of docking that it is doubtful whether they could steam more than nine or ten knots. Besides these, the Chilean squadron included two wooden corvettes, *O'Higgins* and *Chacabuco*, each armed with three 115-pounders, two 70-pounders and four 40-pounder muzzle-loading guns; the old corvette *Abtao*; the ancient sloop *Esmeralda*, carrying fourteen 40-pounder muzzle-loading guns; and various chartered steamers and antiquated gunboats. (Details of ships are in Table VII).

At that date railways were few, running for short distances inland from the ports, so that there was no longitudinal communication by land. Command of the sea was therefore of immense importance, because the various towns on the coast, sundered by arid or desert regions, were in effect so many islands. Chile at once took the initiative and attacked. On April 5, 1879, the Chilean Rear-Admiral Rebolledo Williams arrived off Iquique with the *Almirante Cochrane*, *Blanco Encalada*, *O'Higgins*, *Chacabuco* and *Esmeralda*, and after arranging for the removal of the Chilean inhabitants, began the blockade of the port. A week later the Chilean gunboat *Magallanes*, while on her way to join Williams, encountered the Peruvian corvette *UNION* and the gunboat *PILCOMAYO*, and after two hours of spasmodic firing, escaped from them though they were considerably superior in force. In mid-May the Peruvian squadron convoyed a force of troops from Callao to Arica, and, learning of this, Admiral Williams went north in search of the Peruvian ships, leaving the two old vessels *Esmeralda* and *Covadonga* (eight knots, two 70-pounder muzzle-loading guns) to maintain the blockade of Iquique. He kept close under the land and so he missed the *HUASCAR* and *INDEPENDENCIA*, which passed him well out to sea. They were on their way to Iquique with orders to destroy the two old Chilean vessels there.

The *HUASCAR* was commanded by Captain M. Grau, and the *INDEPENDENCIA* by Captain J. G. Moore; the *Esmeralda* by Commander A. Prat, and the *Covadonga* by Commander

C. Condell. At 8 a.m. on May 21 the action opened, the HUASCAR taking as her antagonist the *Esmeralda* and the INDEPENDENCIA the *Covadonga*. The odds against the two Chilean ships, already hopeless enough, were made worse for Prat by the wretched condition of his vessel's boilers and engines. None the less he delayed his fate by his skill in placing the *Esmeralda* so that she had the town of Iquique behind her, and the HUASCAR had to fire with extreme circumspection so as to avoid injuring friends. Grau did not wish to employ his guns under these conditions and tried to use his ram. He struck the *Esmeralda* a glancing blow, and when the ships were in contact Prat with extraordinary courage leaped on the deck of the HUASCAR, calling on his crew to board, but was followed by only one man. Such an attempt could have only one result; Prat was shot down after Grau had attempted to induce him to surrender. A second attempt to ram was made by the HUASCAR and again the Chileans boarded, this time in greater strength, but once more all were shot down. In the action at close quarters a good deal of superficial damage was done to the turret ship by the small guns of the Chilean gunboat. A third attack was made by the HUASCAR with the ram at 12.10 p.m., and on this occasion the *Esmeralda* was squarely hit and sank at once. Of her crew of 200, 63 were saved. In the HUASCAR the tripod foremast was badly damaged and left in a shaky condition, so that it had to be removed after the battle.

The fight between the INDEPENDENCIA and the *Covadonga* ended in the loss of the large and powerful Peruvian armoured vessel, which, chasing the *Covadonga* close inshore, attempted to ram her and in doing so struck a reef at 11.45 a.m. Condell took up a favourable position and poured a galling fire into her so that she became a total wreck. He was driven off by the HUASCAR which came to her comrade's aid after she had destroyed the *Esmeralda*. The loss of the INDEPENDENCIA had serious consequences as it left the Peruvians far weaker than the Chileans at sea. The Peruvians, however, had the advantage of a good fortified base at Callao, and of a dock which enabled them to keep their ships in good steaming condition.

Grau was promoted rear-admiral after his small success; the Chilean Admiral Williams was removed; and the blockade of Iquique was enforced by the *Cochrane* (Captain Simpson, succeeded a little later by Captain Latorre). But the Chileans left Pisagua, a little port to the north of Iquique,

quite unwatched, and to this place the Peruvians sent reinforcements by sea. The idea of defeating and destroying the Peruvian squadron and then closely blockading the vital points on the enemy's coast had not occurred as yet to the Chileans, though they showed enterprise enough.

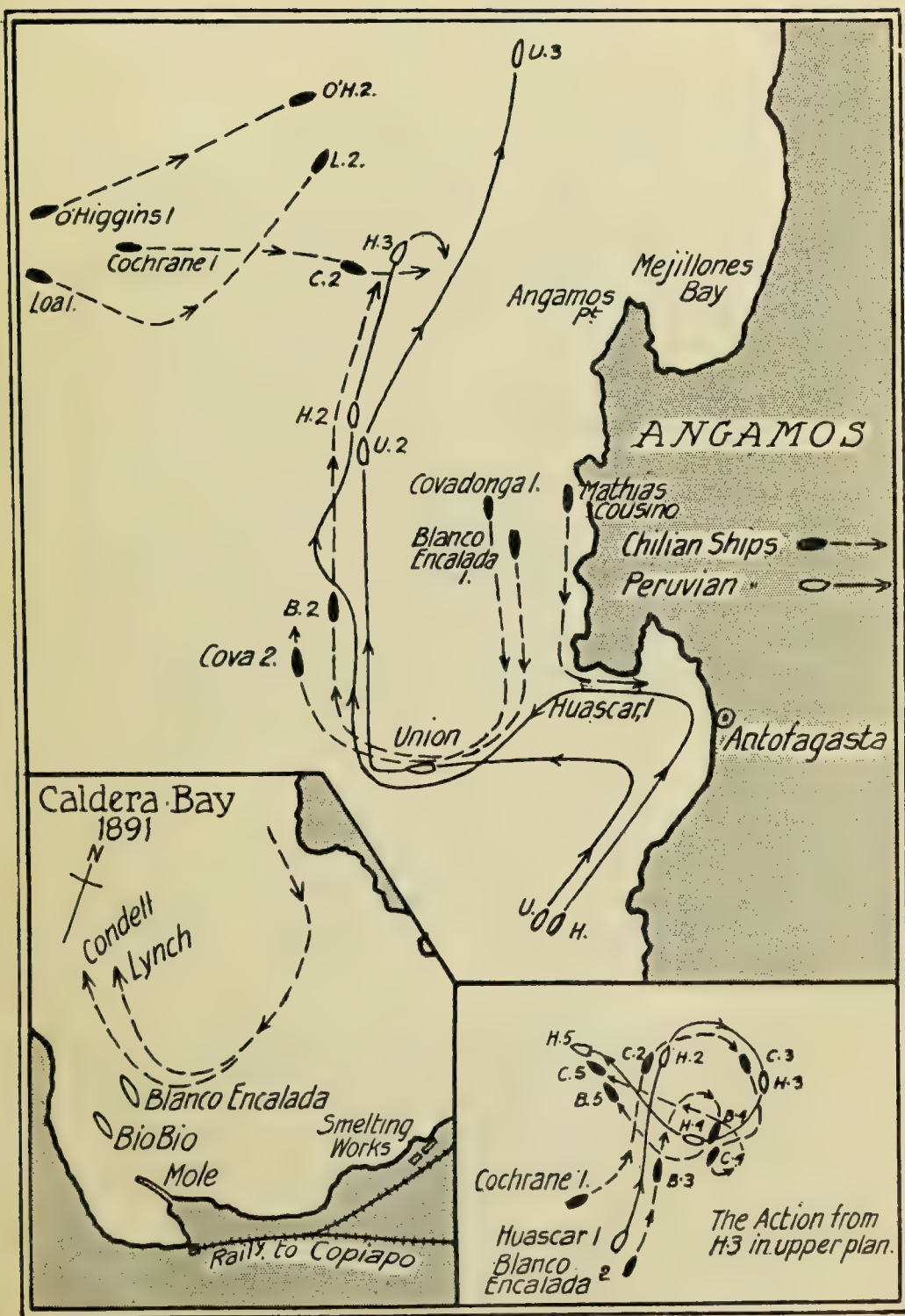
On July 9, the HUASCAR appeared off Iquique where the Chilean gunboat *Magallanes* (one 115-pounder muzzle-loader and three small guns) was cruising inshore, and attempted twice to ram the Chilean vessel without success. As the *Cochrane* was sighted in the distance, the HUASCAR made off. For the next three months the Peruvian turret ship and the corvette UNION harried the Chilean coast, avoiding action by their superior speed. On July 26, the HUASCAR captured a Chilean transport, the *Rimac*, with cavalry on board; and in the night of August 27-28 she made an attack with a Lay torpedo (an early pattern, steered by means of an electric cable which unwound itself as the torpedo ran through the water) on the Chilean corvette *Abtao*, off Iquique. The torpedo was launched, but instead of running properly came back towards the HUASCAR, and was only prevented from striking her by the action of an officer who leaped overboard and guided it away from her. At 11 a.m. next day the HUASCAR exchanged fire at long range with the *Abtao* and *Magallanes* with little result, though the Chileans had 20 casualties.

The *Cochrane*, after being cleaned at Valparaiso by divers and having her machinery thoroughly overhauled, rejoined the Chilean squadron, now under Commodore Riveros, with his pennant in the *Blanco Encalada*. The latter with two small vessels steamed slowly down the coast while the *Cochrane* and two unarmoured vessels cruised twenty-five miles off Angamos Point. At 3.30 a.m. on October 8, the *Blanco Encalada*, near Antofagasta, sighted smoke, which a little later was seen to be from the HUASCAR and the corvette UNION. They were coming north from Coquimbo, which Chilean port the Peruvians had reconnoitred. Grau's orders were to avoid a battle; he made off as fast as he could to the south-west, and quickly outdistancing the *Blanco Encalada* which was much in advance of the *Cochrane*, turned a little later to the north. At 7.15 a.m., however, the HUASCAR's look-out sighted the *Cochrane* to the north-west, and the HUASCAR was turned north-east in an effort to escape, while the UNION went off at full speed northwards, and got away.

About 8 the *Blanco Encalada* was 8,000 yards astern of the HUASCAR; and the *Cochrane*, which steamed far quicker than Grau had expected, was only 8,000 yards off the HUASCAR's port bow. Both the Chilean armoured vessels were steering straight for the turret ship. At 9.10 a.m. the Peruvian crew went to quarters. There was a fresh south wind and a rough sea which hampered the HUASCAR with her low freeboard but did not seriously interfere with the much more seaworthy Chilean ships. The odds in their favour were heavy; their armour was much better than the HUASCAR's, and on the broadside they could bring between them six 300-pounder 9-inch muzzle-loading guns to bear against the HUASCAR's two 300-pounder 10-inch guns of much older pattern.

Off Angamos Point, some distance north of Antofagasta, the HUASCAR opened fire at 9.25, against the *Cochrane*, which ship was 3,000 yards away. The Chilean vessel did not reply till she had closed to 2,000 yards; and during the engagement she generally maintained a position astern of the HUASCAR and outside the arc through which the turret ship's heavy guns could bear; she also swept the deck of the HUASCAR with rifle fire from her two tops. The Chilean shooting was good. One of the first shots pierced the HUASCAR's 3½-inch side armour, exploded below the base of the turret, caused 12 casualties, and jammed the turret for some minutes. At 9.45 another shell hit the HUASCAR's weak conning tower and shattered it, blowing Grau in pieces and also causing the death, from concussion, of his aide-de-camp, Lieutenant D. Ferré, whose body showed no wound. After this the HUASCAR was never really under control, and was little more than a floating target. Her turret was penetrated by a shell which disabled one gun and put out of action nearly all inside, killing the two gun captains and wounding Commander M. Carbajal; and the relief crews could not handle the guns effectively.

Two attempts to ram the HUASCAR were made by the *Cochrane* without success; in a third attempt to ram, the Chilean vessel all but collided with her sister, the *Blanco Encalada*, which was now engaging vigorously. A second shell pierced the HUASCAR's turret, striking near the roof, and again all in the turret were put out of action, and Commander Aguirré, who had taken charge of the ship, was killed. The colours were shot away; and for some minutes it was supposed that she had surrendered until a man ran out and



PLAN 6

[p. 70

ACTION OFF ANGAMOS AND TORPEDO ATTACK ON THE BLANCO ENCALADA

hoisted another flag. At 10.50, however, the condition of the HUASCAR was hopeless, and Lieutenant Garezon, the seventh officer in the order of seniority, all the other six having been killed or wounded, gave orders to sink her. Before this could be done some of the crew had shown the white flag; the Chileans promptly boarded and saved her.

She had been hit by heavy projectiles twenty-seven times and she had between three and four feet of water in her hold; the turret was twice pierced; the conning tower was struck three times; and five heavy shells penetrated and exploded between decks. She had no hits on or near the water-line. Of her crew 38 were killed and over 40 wounded, while about 120 unwounded men were taken prisoners.¹ She had been put out of action by the damage to her steering gear and by the heavy loss which she had suffered in officers and skilled ratings. Her machinery and turret were still capable of working when she was captured. The *Almirante Cochrane* fired forty-five 9-inch shells and the *Blanco Encalada* thirty-one. The HUASCAR fired forty 10-inch shells. The *Almirante Cochrane* was hit four times, one of them by a shell which was thought to have been fired by the *Blanco Encalada* and which killed or wounded 10 men. The *Blanco Encalada* was not hit at all.

	Tons.	Speed Knots.	Launched.	Weight of Broad- side.	Men	Casual- ties.
{ <i>Al. Cochrane</i> ..	3,500	12	1874	900lb.	300	12
{ <i>Bl. Encalada</i> ..	3,500	10	1875	900lb.	300	0
HUASCAR ..	1,800	10	1865	680lb.	200	80
						(about)

The HUASCAR was about ten years older than her opponents and of an inferior class. They were also two to one in number. It seems the clear teaching of naval war that for a surface ship to engage a vessel of superior class spells disaster, though the case of the *Covadonga* shows that there are some rare exceptions.

After this engagement the Chileans held secure command of the sea and their Navy proceeded to blockade the southern

¹ The casualties are variously stated: Barros Arana (p. 98) gives the crew as 205 and states the prisoners wounded and unwounded as 144, which would place the killed at 61. Markham (p. 131) gives the crew as 193 and the killed and wounded as 64. I have generally taken Clowes's figures.

Peruvian ports and assist the land operations against the Bolivian and Peruvian armies. These were 88,000 strong but could do little against the Chilean expeditionary force of 30,000 men, backed by the Chilean Navy. The *Huascar* was thoroughly repaired and received two 8-inch 210-pounder breech-loaders in her turret, when she went to sea under the Chilean flag; and the Chilean squadron was further strengthened by the capture of the Peruvian gunboat PILCOMAYO on November 18. The *Huascar* on February 27, 1880, fought a drawn action of some technical interest with the old Ericsson monitor MANCO CAPAC, off Arica, in which the range is said not to have been more than 200 yards. The Chilean ship was unable to ram because the MANCO CAPAC had with her a torpedo boat; the *Huascar* lost a new foremast which had been fitted in place of her tripod, and her captain, M. Thompson, was killed; she was also hit in the hull and had 7 killed and 9 wounded by that single shot. She fired thirty-five shells from her heavy weapons and drove off but could not sink the Peruvian monitor.

In April, 1880, the Chilean Fleet began a close blockade of Callao, the chief Peruvian port, and attempted various attacks on the Peruvian ships there with launches carrying spar torpedoes. On April 22, Chilean ships, among them the *Huascar*, bombarded the Callao forts and the Peruvian vessels at extreme range (5,000 to 7,000 yards) but with little effect. The bombardment was resumed on May 10, on which day the *Huascar* received a dangerous hit; and from time to time the Chileans fired a few shells at the ships or town. The blockade was economically most effective and disastrously affected Peruvian trade. The Chileans captured Arica after bombarding it on June 6. In the fighting of that day a shell from one of the batteries ashore entered the foremost gun port on the starboard side of the *Cochrane*, exploded two charges for the 9-inch gun and killed 7 men and wounded 21 badly. When Arica fell on June 7, the crew of the MANCO CAPAC sank that monitor. Two other incidents of this war deserve attention. Both the Chilean vessels *Loa* (on July 3, 1880) and *Covadonga* (on September 13) were destroyed by murderous "booby-traps", in the form of small craft, set adrift by the Peruvians, after they had been fitted with powerful charges of explosives and arrangements for detonating them. In the *Loa* 100 men are said to have perished and 50 to have been badly injured; in the *Covadonga* 20 were killed, 43 made prisoners, and 29 escaped.

On November 18, 1880, Chilean forces began to disembark near Callao for the attack on the Peruvian capital, Lima, which fell on January 17, 1881. Next day Callao surrendered, and thenceforth Peru was practically helpless, though peace was not ratified till 1884. "It is no exaggeration to say that the Chilean naval and military leaders had had the game absolutely in their own hands from the moment when their maritime supremacy was assured," comments General Sir C. E. Callwell.¹

¹ *Military Operations and Maritime Preponderance*, p. 286.

CHAPTER V

British Fleet off Alexandria—Orders for the Bombardment—Bombardment of the Forts—Slight Damage to the Ships—The Forts Silenced—Bad Gunnery—Bombardment of Sfax by French—Courbet in China—Action at Foochow—the Mingan Forts Silenced—Chilean Revolution—Torpedoing of the “Blanco Encalada”—Action off Caldera—Capture of Valparaiso—Affair of the “Itata”—Brazilian Civil War—Strange Conditions in Rio Harbour—“Aquidaban” Torpedoed and Sunk.

IN July, 1882, the greater part of the British Mediterranean Fleet under Admiral Sir F. B. P. Seymour was off Alexandria, where it had concentrated in May to protect foreigners in view of the disturbed conditions in Egypt. The National party in that country with Arabi Pasha (the Khedive's Minister of War) as its leader, had raised the cry of “Egypt for the Egyptians” and had virtually made the Khedive its prisoner. The movement was accompanied by a dangerous anti-foreign outbreak; on June 11 the always unruly populace of Alexandria in a savage riot attacked the British Consul and killed numerous British and French subjects.

The British Fleet consisted of the armoured ships *Alexandra*, *Sultan*, *Superb*, *Monarch*, *Invincible*, *Penelope*, *Inflexible* and *Temeraire*, with the small gunboats *Bittern*, *Beacon*, *Condor*, *Cygnets* and *Decoy*. The larger vessels were a miscellaneous assortment of indifferent specimens, armed, so far as their heavy weapons went, solely with muzzle-loaders, and the gunboats were feeble little craft. The force as a whole was badly adapted for operations on the shallow Egyptian coast, or, indeed, for any operation at all. The armoured vessels were of deep draught, with the exception of the *Penelope*, which drew only twenty feet. On the broadside they brought to bear forty-four heavy weapons with a total

weight of metal of about 22,500 pounds, but the fire of these guns was extremely slow. They carried, however, numerous small machine guns, of which the Nordenfelt 1-inch weapon was capable of rapid fire with its 7-ounce steel projectile. Inside the harbour were the *Invincible*, *Monarch*, and *Penelope*, and to the first-named Seymour shifted his flag from the *Alexandra*, which drew too much water for work close in-shore.

The Egyptians were observed to be strengthening the fortifications south of the harbour, which bore on the ships, and a warning was given them by Seymour that if the works were not temporarily surrendered, the fleet would attack. The Egyptians paid no attention and on July 10 he sent the Military Governor of Alexandria an ultimatum to the effect that he would bombard the forts at 5 a.m. next day (July 11) unless a satisfactory answer was given to his demand.

The fortifications were of antiquated type and mounted only forty-four rifled guns, with 211 smooth-bores and 38 smooth-bore mortars. The most powerful of the rifled guns were five 10-inch muzzle-loading weapons, of which one was unserviceable at the date of the bombardment. The total weight of metal fired from the rifled guns at one discharge was 9,400 pounds. The smooth-bores were many of them mounted on rotten carriages and in every case fired over the parapet, so that their crews were much exposed. The magazines and necessary buildings behind the forts showed plainly and were good targets. The general opinion in the British Fleet was that the reduction of the forts would be a simple business, all the simpler because owing to the presence of British ships in the harbour the Egyptians had not been able to lay mines. (See Table VIII and VIIIA for Details).

In his instructions, issued on July 10, Seymour made no provision for concentrating his force against the strongest forts and then dealing with the others in succession. The *Invincible*, *Penelope* and *Monarch* were to form an inshore squadron and attack the Mex Fort and Mex Lines. The *Inflexible* was to take station in Corvette Pass, ready to support the attack on Mex. The *Sultan*, *Superb*, *Temeraire* and *Alexandra* were to destroy the Lighthouse Battery and the other works on the Ras-el-Tin peninsula; and when this was accomplished the *Sultan*, *Superb* and *Alexandra* were to move to the east and attack Fort Pharos and the Silsileh Battery. The gunboats were to remain outside and keep out of range until a favourable opportunity offered of attacking

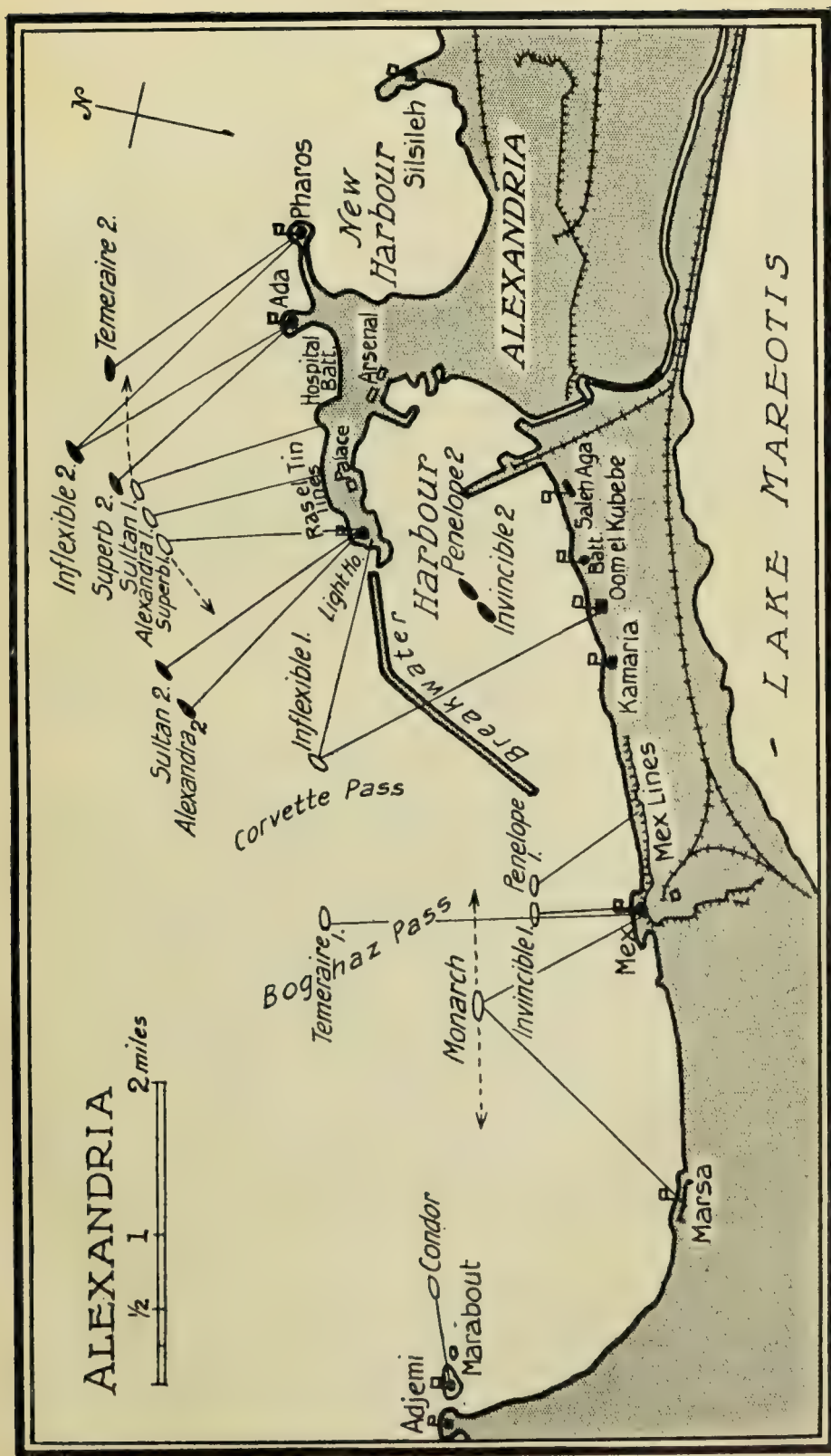
Mex. Captains were given permission to anchor, if they preferred, and were directed to expend shell with caution. They were informed that, "the object of this attack is the destruction of the earth-works and the dismantling of the batteries on the sea-fronts of Alexandria: it is possible that the work may not be accomplished under two or three days."

Before night fell the ships took up positions which had been allotted to them at distances of 1,000 to 3,750 yards from the forts, cleared for action, with top-gallant-masts struck and upper yards sent down. The cable-ship *Chiltern* picked up the submarine cable to Malta, enabling the British admiral to communicate all news at once to the Admiralty. The next day dawned clear and bright with a smooth sea and light north-west wind which carried the smoke ashore. At 7 a.m. the *Alexandra* fired the first shot at Fort Ada, and Seymour hoisted the signal for general action in the *Invincible*. The Egyptians replied with wonderful courage. The British fire was slow and many of the shells failed to burst. The *Sultan*, *Superb* and *Alexandra* at first kept in motion, but then, as their practice was bad, anchored off Ras-el-Tin, and their shooting immediately improved. The *Invincible* and *Penelope* engaged at anchor, but as the morning went on the *Penelope* weighed and, steaming out to 1,200 yards from Mex fort, allowed herself to drift in to 700 yards, repeating the manœuvre time after time. The *Monarch* steamed backwards and forwards. The *Inflexible* and *Temeraire* anchored, the *Inflexible* firing with one turret at Oom-el-Kubebe and with the other at the Lighthouse Battery. For some minutes the *Temeraire* went aground, but was towed off by the *Condor* without damage.

At 8.30 a.m. Commander Lord Charles Beresford, noting that the fire of Fort Marabout was annoying the inshore squadron, steamed boldly in with his little gunboat the *Condor*, and, selecting a position where he was so close in to that hostile work that its guns could only reach him with extreme difficulty, attacked with great effect.¹ He anchored close under the fort and by warping his vessel eluded the Egyptian projectiles, while his machine guns and heavier weapons by degrees silenced all but one of the guns in the fort. About 10 a.m. Seymour, observing the *Condor's* gallant behaviour, sent in the other gunboats to her support. Half-an-hour later the western forts ceased firing.

At 12.45 p.m. the *Inflexible* and *Temeraire* steamed round to bombard Fort Pharos and the eastern works; and by 2.30

¹ Lord C. Beresford, *Memoirs*, pp. 186-9, and personal information.



PLAN 7

the forts and batteries in that quarter appeared to have been silenced, though Fort Pharos fired occasional shots until 4.30. About 2 a detachment of twelve volunteers under Lieutenant B. R. Bradford landed near Mex Fort and disabled two 10-inch muzzle-loading guns besides spiking six smooth-bores. They suffered no loss. The *Condor* for her conduct was rewarded by the signal, "Well done *Condor*!" and Beresford was ordered on board the flag-ship to receive the admiral's thanks. At 5.30 Seymour ordered the fleet to cease action; ammunition was already running low and the *Inflexible* had only ten rounds apiece left for her big guns. Directions were given to prepare for renewing the attack next day. But the 12th was windy and the sea too rough for effective shooting, so that the further bombardment was postponed till the 13th, when it was discovered that the forts had been abandoned and Alexandria set on fire in several places.

The British loss was as follows :

Killed. Wounded.			Killed. Wounded		
<i>Alexandra</i>	..	1 3	<i>Inflexible</i>	..	1 2
<i>Superb</i>	..	1 1	<i>Invincible</i>	.	0 6
<i>Sultan</i>	..	2 8	<i>Penelope</i>	..	0 8

Total 5 killed, 28 wounded.

One V.C. was awarded to Gunner Israel Harding of the *Alexandra* who, with great presence of mind, threw water on the burning fuse of a heavy smooth-bore shell which had passed through the ship's unarmoured side and lodged in her deck. He then picked up this shell and placed it in a tub of water. The damage to the ships was insignificant. One 10-inch rifle projectile struck the *Inflexible* below the water-line and, glancing upward from her armour deck, mortally wounded Lieutenant F. S. Jackson. The *Alexandra* showed sixty hits, twenty-four of them outside her armour; the *Penelope*, eight hits; and the *Invincible*, about a dozen. The *Superb* had one awkward water-line hit; the *Sultan* had a plate started on the water-line; the *Monarch* and *Temeraire* had no injury to report. All the ships remained battleworthy after the action.

The Egyptian loss was probably about 150 killed and 300 wounded out of 2,000 men engaged. Though the forts from the water appeared masses of ruins, when they were examined closely the damage was found to be very much less than had been supposed. Only ten of the rifled weapons had been

disabled by the bombardment. Pharos looked much shattered, yet five out of six of its heavy rifled guns could have been worked. Oom-el-Kubebe, at which the *Inflexible's* huge 81-ton guns had fired, had only had one old smooth-bore smashed. The total number of rounds expended by the fleet was 1,731 from guns of 7-inch and over; 1,467 from smaller guns; 16,233 from Nordenfelts, and 7,100 from Gatling machine guns. The Nordenfelts made no more than seven hits that could be detected on guns or gun-carriages.

All the evidence which the operation yielded was thus to the effect that ships are at a great disadvantage in engaging forts, and unless they can close to exceedingly short ranges they can have little chance of putting even poorly-mounted guns ashore completely out of action. If the Egyptian commander had continued his defence the works were capable of much further resistance. The quality of the British ammunition was undoubtedly unsatisfactory; many of the shells failed to burst on impact, and others exploded prematurely in the air. The *Inflexible's* big projectiles caused much less damage than had been expected, an experience which was repeated with the *Queen Elizabeth's* 15-inch shells at the Dardanelles many years later. Verdicts on the British shooting differed; Admiral Sir A. K. Wilson, who watched the bombardment in the *Helicon*, thought it good¹; Captain J. A. Fisher, of the *Inflexible*, afterwards the famous Admiral, described it as indifferent; Sir Percy Scott, who examined the forts after the bombardment, considered it deplorable, which seems to have been the truth. He ascribed the failure of the British shells to the fact that they were for the most part fired with reduced charges which did not give a sufficient shock to make the fuse operate.²

The British Fleet did its work none the less. A United States naval officer³ who witnessed the bombardment reported that ships do not fight on even terms with forts; that guns should be painted the same colour as works; that flat-trajectory weapons are unsatisfactory for the attack of earth-works; and that, opposed to forts, ships gain by anchoring. He thought that if the Egyptians had made any hits with their mortars the history of ordnance might have been changed as only three of the British ships engaged had the protection of armoured decks (*Inflexible*, *Temeraire*, *Alexandra*.)

¹ Sir E. Bradford, *Life of Sir A. K. Wilson*, p. 67.

² Sir P. Scott, *Fifty Years in the Royal Navy*, p. 48.

³ Lieut.-Commander C. F. Goodrich.



THE EARLY BRITISH BATTLESHIP "INFLEXIBLE"

This ship was commanded at the bombardment of Alexandria by Lord Fisher (then Capt. Fisher). One of her turrets with its two 81-ton guns is plainly seen. She was an ugly vessel and difficult to handle.



THE EARLY BRITISH BATTLESHIP "ALEXANDRA"

She was a fine old vessel of the muzzle-loader days with the masts and sails which were thought necessary before the Navy had accustomed itself to reliance on steam.

A year before the bombardment of Alexandria, a French squadron attacked Sfax, in Tunis, which was then in the hands of insurgent Arabs. The batteries there were of antiquated type, much less formidable than those at Alexandria, and the force available for their attack was powerful, consisting of the French Mediterranean Fleet under Vice-Admiral Garnault and Rear-Admiral Martin, with the armoured ships *Colbert*, *Trident*, *La Galissonnière*, *Friedland*, *Marengo*, *Surveillante*, *Revanche*, *Alma*, and *Reine Blanche*, ranging from 8,800 tons to 3,900, and mounting breech-loaders of 10.8-inch, 9.4-inch, and smaller calibres. The light craft numbered eleven small cruisers and gunboats.

The place was intermittently bombarded between July 5 and 14, 1881; on July 15 it was heavily shelled in preparation for a landing next day which took place under cover of the ships' fire. To cross the soft mud of the beach six long rafts had been constructed with spars and timber by the armoured ships; these were towed in and fastened together so as to form a jetty. The landing force numbered 1,600 seamen and 1,400 troops. It encountered little resistance, disembarking without difficulty, and speedily captured the town and forts. The loss to the fleet was 11 killed and 15 wounded.

In 1884 attacks by Chinese irregular troops upon the French forces in Tonkin led France to take reprisals against the Chinese Government. The French squadron in Chinese waters at this date was under Rear-Admiral Courbet. It consisted of the armoured cruisers *Bayard*, *La Galissonnière* and *Triomphante* (each four to six 9.4-inch breech-loading guns and several small weapons); and the unarmoured vessels *Duguay-Trouin*, *Saône*, *Château-Renault*, *Villars*, *D'Estaing*, *Volta*, *Lynx*, *Aspic* and *Vipère*, with torpedo boats Nos. 45 and 46, steaming 16 knots and armed with spar torpedoes. China was destitute of anything that could be described as a serious naval force; her best ship was a wood and iron cruiser, the YANG-WOO, which acted as flag-ship. Courbet was told by the French Government that the best way of bringing China to account would be to seize the island of Formosa, though his own view was the sound one, that the occupation of Port Arthur or Wei-hai-wei would be a far more effective blow, because it would be struck at the heart of China. Diplomatic reasons and the fear of British or Russian antagonism led the French Government to overrule his advice. As a warning to the Chinese authorities, on August 5, Rear-Admiral Lespès, the French second in

command, bombarded the port of Kelung in Formosa, but was repulsed in an attempt to occupy the place. The only result was that a Chinese edict was issued directing the provinces to prepare for war.

Courbet's ships¹ meantime, had proceeded one by one up the river Min, on which stands the city of Foochow, where was one of the most important of Chinese naval arsenals. They passed the forts without being attacked before, on August 21, diplomatic negotiations were broken off. In the Min was moored a Chinese squadron composed of the YANG-WOO, six wooden sloops, two armed transports, two gunboats, and seven spar-torpedo launches, beside a number of worthless war junks. On August 22, Courbet informed the Chinese authorities that he had received orders to take reprisals for the attacks in Tonkin. The Chinese squadron was thoroughly prepared, but was so inferior in force that it had no hope of success in an encounter. Shortly before 2 p.m. on August 23, Courbet's ships opened at close quarters a terrific fire on the Chinese flotilla, which in seven minutes ceased to exist. The French shooting was rapid and accurate. The YANG-WOO was torpedoed by Torpedo Boat No. 46 amidships and sank some minutes later, only 15 of her crew of 270 escaping. The other vessels blew up, sank, or burned. At 2.45 the French Fleet turned its projectiles upon the Chinese forts which suffered greatly, and the French bombardment continued for two hours. At 4.45 Courbet's squadron anchored for the night out of range; during the hours of darkness the Chinese attempted to attack it with torpedo, but failed. Its injuries were insignificant and its loss was trifling—6 killed and 27 wounded—whereas the Chinese killed were reported to be 521, with, in addition, 150 wounded and a large number of men missing. The engagement was little more than a military execution in which the Chinese vessels served as helpless targets. On the following day the arsenal was bombarded a second time.

On August 25, Courbet issued orders to his squadron to descend the Min and destroy the forts below him on the narrow Mingan Channel, which he had passed going upstream before hostilities had begun. He transferred his flag to the *Duguay-Trouin* for this operation which was facilitated by the fact that he could take the forts in reverse. The *Bayard*, *Galissonnière*, *Saône*, and *Château-Renault* were available outside the mouth of the Min to distract the atten-

¹ His flag was in the *Volta*: he left at the entrance to the river the *Bayard*, *Galissonnière*, *Saône* and *Château-Renault*.

tion of the Chinese. On the 25th and 26th the Mingan forts were silenced one by one and the guns destroyed by landing parties, the Chinese offering only the feeblest resistance. Next day Courbet proceeded to the Kimpai Narrows, reinforced by the unarmoured vessels *Sàone* and *Château-Renault* which had joined him, and on August 27 and 28 destroyed the forts there. The ships *Triomphante* and *Duguay-Trouin* anchored with springs to their cables above the forts, and paid out cable till their batteries would bear on the first embrasure. Upon this embrasure their fire was concentrated at short range, rapidly silencing the gun. These tactics were repeated with embrasure after embrasure till the Chinese abandoned the works. Had mines been laid or had the defence been a little more active the enterprise would have been far more difficult. The only French ship damaged was the *Galissonnière* which was hit forward by a heavy Chinese shell, and had to have her injury made good at Hong-kong. The total French loss was 10 killed and 48 wounded.

After this affair Courbet once more urged upon his government the importance of operating in the north, and seizing Chefoo as a base for an attack on the Chinese Navy or what existed of it, but received orders to secure Formosa. He therefore attacked Kelung a second time and occupied it, after four days' bombardment, on October 1. His second in command, Rear-Admiral Lespès, however, met with a check at Tamsui. Courbet had been refused sufficient landing forces and had to disembark men from his ships, which were thus immobilised, but on October 20 he proclaimed a blockade of the coast of Formosa. Against the blockade the British Government protested on the ground that the French naval force was not large enough to render it effective. There was this further objection that no declaration of war had been made by either side, so that the position was somewhat like that on the outbreak of the American Civil War, when Lincoln proclaimed the blockade of the South. Pending the arrival of reinforcements, Courbet was therefore instructed to cease any interference with neutrals.

On February 20, 1885, the French Government announced that it would regard rice when bound for open Chinese ports as contraband, explaining that such a stoppage of Chinese supplies would bring China to reason with less injury to neutral trade than would be inflicted by a close blockade of the Chinese ports. The British Government protested against rice being treated thus, irrespective of its final des-

mination, but the war came to an end before the point had been settled. The Chinese Government meanwhile strongly protested to Great Britain against the use by French warships of Hongkong as their virtual base of operations; and orders were issued in January 1885 that the *Triomphante* was not to be permitted to refit there.

Two minor actions marked the closing weeks of this war. In the night of February 14-15, 1885, the two small Chinese cruisers YU-YEN and CHEN-KIANG were attacked by French launches armed with spar torpedoes under Lieutenants Gourdon and Duboc. The Chinese vessels were lying in Sheipoo Roads (near Ningpo) watched by a strong French squadron. Gourdon led the attack; his approach was not detected till he was close to the Chinese ships, and both he and Duboc successfully exploded their torpedoes and escaped with trifling injuries and with only 1 man killed. Gourdon's boat ran aground on her retreat but was got off without further loss. Both the Chinese ships were sunk, probably because they fired into one another.

On March 29, Courbet, with a landing force, arrived at the Pescadores and bombarded the weak forts protecting the harbours at Ponghun and Mahung, where landings were effected, and Makung was occupied on March 31. On April 3, 1885, preliminaries of peace were signed.

In January, 1891, the bulk of the Chilean Fleet declared against the Chilean president, Balmaceda, who was accused by the Congressionalist or Liberal party in that country of aiming at a dictatorship. The vessels which joined the Liberals were the armoured ships *Blanco Encalada* and *Almirante Cochrane* (both of which had been rearmed with 8-inch breech-loading guns since the Peruvian war) the fast Elswick protected cruiser *Esmeralda* and the unarmed ships *O'Higgins* and *Magallanes*. The Congressionalists then took possession of the turret ship *Huascar* and of several Chilean steamers, which they armed. Balmaceda was left with only one armed mail steamer, the *IMPERIAL*; five small torpedo boats; and two torpedo gunboats of modern design then on their way from England out to Chile. They were the *ALMIRANTE CONDELL* and *ALMIRANTE LYNCH* each of 750 tons, steaming 21 knots on trial, and armed with two 14-pounder quick-firers and five 14-inch Whitehead torpedo tubes apiece. On January 9, as the Congressionalist squadron was lying in Valparaiso harbour, its boats were fired upon from the shore, and from that date onwards there were constant skirmishes.

While the *Blanco Encalada* remained at Valparaiso the rest of the revolted squadron went north to capture the nitrate ports, which after the Peruvian war had become Chilean and were isolated by great stretches of desert from Valparaiso. They were of extreme importance because the dues levied in them formed a considerable part of the Chilean revenue. On January 16 at 5 a.m. three of the Valparaiso forts (Valdivia, Bueras, and Andes) each fired a round at the *Blanco Encalada*. The shell from Fort Bueras, fired at a range of 600 yards, was a 10-inch 450-pound one, and struck the ship's 8-inch armour without perforating, though it drove a bolt in the armour right through, disabling an 8-inch gun. The Valdivia shell, fired at 1,200 yards, was an 8.2-inch Krupp 250-pound projectile, filled with sand, and broke up against the 5-inch iron bulkhead, killing 6 men and wounding 6 (3 of them mortally). The third shell missed. The *Blanco Encalada* at once changed her moorings to a point off the Custom House, where she could not be fired at without danger to the town of Valparaiso. That night she put to sea and proceeded north to join the rest of the Congressionalist squadron. Through the skilful use of their naval force, the Congressionalists were able to secure Iquique and the province of Tarapaca, which became their base from February 20 onwards, and to extend their authority south to Coquimbo.

In the night of January 27, a Congressionalist picket boat, probably sent in by the *Blanco Encalada*, fired a torpedo at the Balmacedist steamer IMPERIAL, but missed her. On March 21, the torpedo vessels LYNCH and CONDELL arrived at Valparaiso, but they were in such bad order that some weeks had to be spent in replacing their boiler tubes. On April 18 they left Valparaiso with the IMPERIAL, and reached Huasco on April 22, after a stay in Quinteros Bay for small arms and torpedo practice. Commander Moraga, the senior officer in command of the CONDELL, was informed that the *Blanco Encalada*, *Cochrane*, *Huascar*, and several less important vessels of the Congressionalist squadron were at anchor in Caldera Bay which they had just seized. Moraga forthwith conferred with Commander Fuentes of the LYNCH and with him arranged to deliver a torpedo attack on the vessels at Caldera.

Both torpedo gunboats were to enter the bay from the north, the CONDELL in advance, to creep up as close as possible to their antagonists, the CONDELL to starboard and the LYNCH to port, and first to use their bow tubes and then the training tubes abeam. About 4 o'clock of a dull and cloudy morning

on the 23rd Moraga led the way into the bay and made out in the uncertain light two vessels, one of which was the *Blanco Encalada* and the other the small armed ship *Biobio*. The CONDELL closed, undetected, to within 500 yards of the *Blanco Encalada* and fired three torpedoes in quick succession, all of which missed. Between the discharge of the second and third the *Blanco Encalada* opened fire with her 3-pounders and 6-pounders, and machine guns, besides her heavy guns. The LYNCH coming up astern of the CONDELL, was not apparently noticed from the armoured ship and was able to discharge two torpedoes at close range—about 150 yards—of which the second hit and exploded with great violence. Both torpedo vessels had opened fire so soon as they were clearly discovered, and their 14-pounder and 3-pounder shells caused heavy loss in the *Blanco Encalada*.

The *Blanco Encalada* was struck on the starboard side, near the dynamo room, and the shock was extremely violent. She was lying moored to a buoy, and some neglect of precautions was shown. Her commander, Captain Goni, believed that peace negotiations were proceeding and thought that the Balmacedists could not have learnt of his presence at Caldera: hence he was not so careful as he should have been. He had steam up, but the night was dark, and the watch was slow in detecting the approach of the torpedo vessels. When the alarm was given, fire was opened and he skipped his moorings and turned the ship bows on towards the CONDELL just before his vessel was hit by the LYNCH's torpedo. She sank in five minutes and of her crew of 284 officers and men, 11 officers and 171 men were killed by the gunboats' fire or drowned. Water-tight doors had not been closed and searchlights were not brought into action. When the ship was examined by British divers it was found that a hole fifteen feet long and seven feet broad had been blown in her side, and that the scuttles were all open on the port side. One of the torpedoes fired was recovered and proved to be a Mark IV Fiume, set for 660 yards with a charge of 58 pounds of gun-cotton. This was the first instance in which a White-head torpedo was used with success in war. Of the two torpedo gunboats, the CONDELL escaped untouched, but the LYNCH was hit four times and slightly damaged by the Congressionalists' fire.

Day had broken when, as the two torpedo gunboats stood out of Caldera Bay, they saw a ship which they took to be the IMPERIAL, and proceeded towards her. They discovered

her to be the Congressionalist armed transport *Aconcagua*, mounting three 40-pounders or 50-pounders, besides smaller guns. After ninety minutes' firing another vessel was seen in the offing and taken to be the powerful Congressionalist cruiser *Esmeralda*, whereupon Moraga decided to retreat, and thus the *Aconcagua* was allowed to steam off to safety in Caldera Bay. The stranger turned out to be a British cruiser. The casualties on either side were trifling; the gunboats fired more than 400 rounds and made only eight hits, wounding 4 of the *Aconcagua's* crew slightly; the *Aconcagua* fired 197 rounds with little effect.

After this affair the Congressionalists laid mines to protect their bases and placed booms in position at Caldera, so that subsequent attempts to torpedo Congressionalist ships failed. In August, the Congressionalists assembled a powerful force of 9,136 troops at Iquique in transports which were convoyed south by the whole Congressionalist squadron, and appeared off Quinteros Bay, a little to the north of Valparaíso, in the night of August 19. Balmaceda, uncertain where the blow would fall, had been compelled to scatter his forces which were numerically much superior, totalling 32,000 men. The cruiser *Esmeralda* was sent by the Congressionalists on August 17 to demonstrate off Valparaíso and communicate with sympathisers. On August 20, the disembarkation began at Quinteros Bay and was rapidly and easily carried out with the aid of sixteen large lighters. No opposition was offered from the shore, and the Balmacedist torpedo craft remained inert. Balmaceda's generalship was bad and the Congressionalists, supported by the fire of their warships, cut the railway from Valparaíso to Santiago, the capital of Chile, and on August 27 captured Valparaíso, after one of the most brilliant campaigns in military and naval history. The audacity of their strategy was remarkable as they ventured with a large number of transports into water where they had to fear torpedo attack.

During this war occurred the affair of the *Itata*. This vessel was a Congressionalist steamer, sent to San Francisco in the United States to ship arms. She arrived before the necessary arrangements had been made, and as her presence at San Francisco aroused suspicion, she was instructed to proceed to sea and take the munitions on board from two American schooners, outside the 3-mile limit. Before she had done this, her fuel ran short and she put in to the United States port of San Diego to recoal. The American authori-

ties, imagining that she meant to embark the stores there, placed a United States official on board, on May 5, 1891. On May 6, she slipped her cable, went to sea and, meeting the schooners, trans-shipped the arms, and put the official ashore. Regarding this as an outrage to their flag, the United States Government issued orders to their warships on the Pacific station to seize her. She was accordingly compelled to surrender to the American flagship at Iquique on June 3, but by the orders of the United States Supreme Court was restored to her owners on September 30, on their giving bonds for £25,000. It was subsequently admitted that her seizure was unjustifiable.

A civil war in Brazil followed very closely on the civil war in Chile. On September 7, 1893, Rear-Admiral de Mello seized the warships in the harbour of Rio de Janeiro and the naval arsenal at Nictheroy, with the object of deposing the President, Marshal Peixoto. The vessels in question were the *Aquidaban*, a sea-going turret ship of 4,950 tons, armed with four 9-inch breech-loader guns and a number of smaller weapons; the protected cruiser *Almirante Tamandare*, of 4,735 tons; and a number of other vessels of smaller size and less fighting power, the most important of which were three large torpedo boats, with nominal speeds of 25 knots. To this force Peixoto had little on the spot to oppose at sea, but a torpedo gunboat, similar in design to the Chilean vessels Condell and Lynch, had been ordered in England, and was due shortly to arrive. She was christened the GUSTAVO SAMPAIO when she reached Brazil.

Unlike the Chilean Congressionalists, the revolted Brazilian ships were not able to establish any firm footing ashore. Even the arsenal at Nictheroy was only held precariously. Mello secured several of the islands in Rio harbour, but neutral remonstrances prevented him from blockading or bombarding the city of Rio itself, and all the forts except Villegaignon remained loyal to Peixoto. On September 14, spasmodic interchanges of fire between the ships and forts began, and thereafter continued for some weeks, and in these encounters shells occasionally fell in the city of Rio. The *Aquidaban* was struck several times by 6-inch projectiles with but insignificant damage. After several Melloist steamers had succeeded in leaving the harbour without injury on October 12, the armed merchantman *Urano*, while running past the forts at the entrance to the harbour with

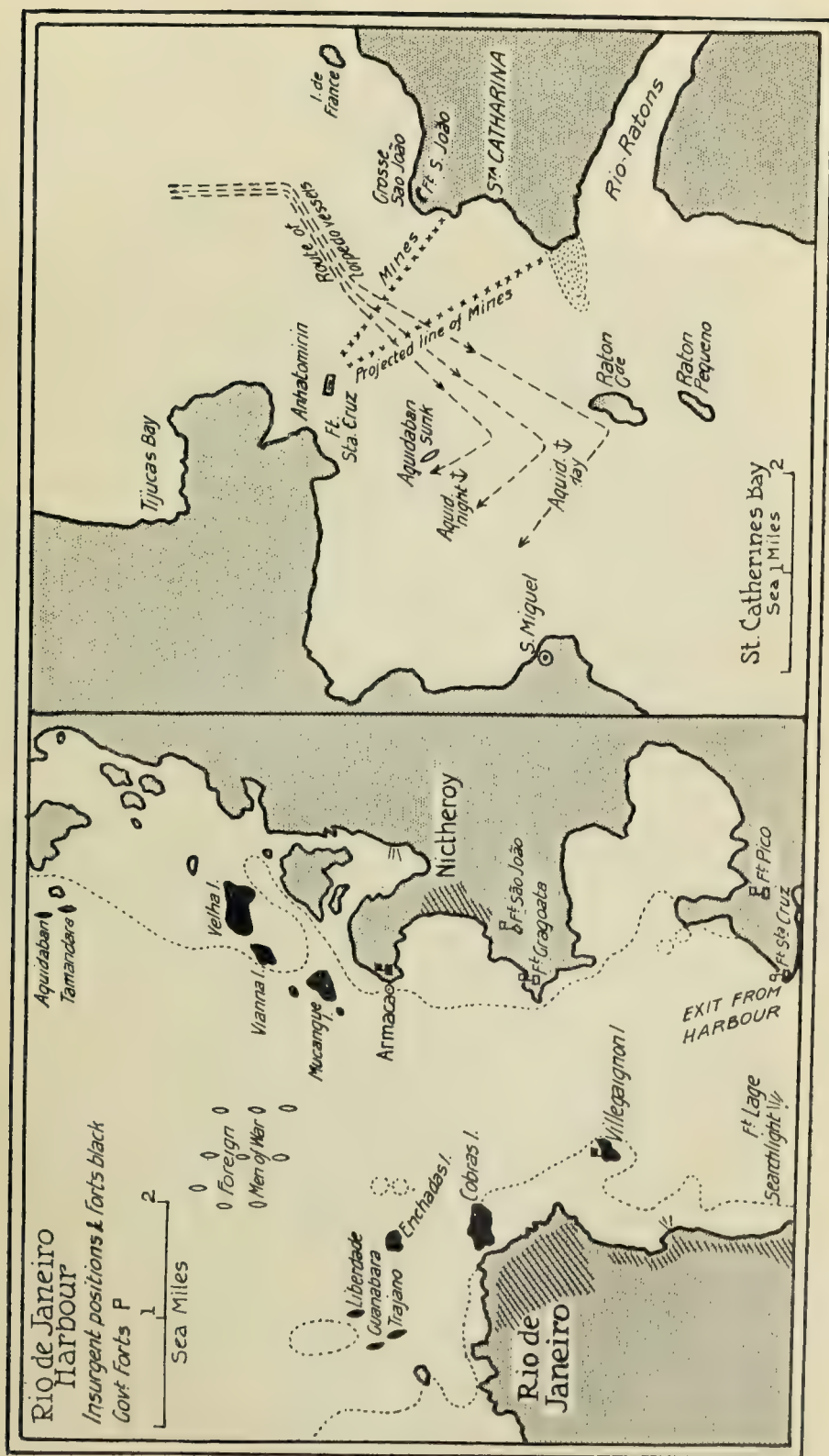
Melloist adherents on board, was badly hit and lost 40 killed or wounded. As some offset to this the Melloist cruiser *Republica* rammed and sank the Peixotist transport RIO DE JANEIRO with heavy loss of life to the Peixotists.

The insurgents remained weak in numbers—they appear to have not mustered much more than 1,500 officers and men—and if the forts had seriously engaged them, would have had little chance of escape. Two of their magazines were blown up; in the second there were 100 tons of powder when it exploded on November 3, and 5 officers and men of the British squadron in the harbour who happened to be near it were accidentally killed. On November 20, an insurgent torpedo boat was sunk, probably by a hit from a fort, and on the 22nd, the turret ship *Javary* (3,700 tons, launched 1875) sank after an engagement with the forts. It is doubtful whether she was hit or whether she so shook her old hull, which was in bad order, that it let in the water. Towards the end of November the Peixotists established themselves in the Arsenal at Nictheroy, though part of that establishment remained in Melloist hands. At 12.30 a.m. of December 1, the *Aquidaban*, with an armed steamer, under the full glare of the harbour searchlights and fired at by every gun in the forts, ran out to sea, with trivial damage and without the loss of a man in the *Aquidaban*. The guns in the forts had not illuminated sights for night firing.

Admiral da Gama remained in the harbour in charge of the Melloist fleet there, and did his best to interfere with trade. He was rejoined by the *Aquidaban*, which ran past the fort into the harbour on January 12, 1894, without being hit. Mello was not on board but was attempting to establish a government of his own in the south of Brazil. There was now a continual exchange of projectiles between the ships and the forts in which the neutral shipping suffered, with the result that intervention was threatened. Rear-Admiral A. E. K. Benham, commanding the United States squadron, which was composed of the armoured cruiser New York, and the protected cruisers San Francisco, Charleston, Newark and Detroit, warned Gama that if the insurgents fired on American ships, those ships would be protected. On January 29, 1894, after the American squadron had cleared for action and after the Detroit had fired one shell Gama announced that he would not interfere with neutrals at the Rio wharves. On February 9 the insurgents made an attempt to capture the Armação battery at Nictheroy, but were repulsed with heavy loss.

Their position had now become desperate. Peixoto had succeeded in collecting a naval force of various odds and ends, with the torpedo gunboat GUSTAVO SAMPAIO (18 knots, three torpedo tubes) and three German-built torpedo boats (26 knots, three torpedo tubes each) AFFONSO PEDRO, PEDRO IVO and SILVADO, as its most efficient units. The forts whenever they obtained a chance shelled the ships and made several hits on the *Almirante Tamadare* and *Aquidaban*. These two vessels were quite capable of destroying Peixoto's flotilla, but they were not used with any resolution. On February 21, however, the *Aquidaban* once more ran out of the harbour and passed the forts uninjured; she was only struck twice. But she did not trouble herself about the Peixotist naval force which, unmolested by her, appeared off Rio on March 10. A demand for the immediate surrender of the insurgents was made by Peixoto, and on the 13th the insurgent positions and ships were shelled by the forts and by Peixoto's vessels. That night all resistance ceased, Gama and 480 of the leading insurgents taking refuge in Portuguese vessels, which were allowed by the Brazilian Government under protest to remove them to Montevideo in Uruguay.

The *Aquidaban* with the cruiser *Republica* and a number of armed vessels was still at large in the south of Brazil, and on April 7, the *Republica* drove the Peixotoist gunboat CANANEA upon a sandbank where the CANANEA sank. On April 16, the *Aquidaban* was located in Santa Catherina Bay, where the torpedo craft GUSTAVO SAMPAIO, AFFONSO PEDRO, PEDRO IVO, and SILVADO were ordered to attack her that night. The weather conditions were favourable; it was dark and rain was falling heavily. The boats were to advance in line abreast till well within the bay when they were to turn and spread fanwise, steaming north-west. The crew of the *Aquidaban* had laid mines to protect the anchorage, and these failed to act. The insurgents were expecting a small steamer which was bringing them supplies, but otherwise they appear to have been on the alert. Of the torpedo craft, the PEDRO Ivo could not keep up and dropped out of the operation. The other three approached the *Aquidaban*, the SAMPAIO leading. The torpedo gunboat was only 200 yards away when she saw the *Aquidaban* and was seen from that ship. Two 16-inch torpedoes were fired from the SAMPAIO; the first missed, but the second struck the armoured vessel well forward on the port side and its charge of 125 pounds of gun cotton exploded with tremendous force. The *Aquidaban's* crew opened a



PLAN 8

violent and well directed fire, hitting the SAMPAIO thirty-eight times, though without doing any serious damage and only wounding 1 man. The AFFONSO PEDRO fired two torpedoes without making a hit, and the SILVADO narrowly escaped torpedoing the SAMPAIO in the darkness and confusion. Neither of the two torpedo boats was hit.

The *Aquidaban's* water-tight doors were closed before she was torpedoed, and after the hit her engines were started and she moved a short distance north, but she then sank slowly in the mud and took the ground in 22 feet of water. Her crew escaped ashore or surrendered; they suffered no loss as no one was in the compartments which were shattered by the torpedo. Peixotoist forces took possession of her on April 16 when the insurrection in the south collapsed. She was patched up, taken to Rio under her own steam, and there repaired. The hole in her side was 19 or 20 feet long, and her four forward compartments had filled, while inside the hull everything was smashed beyond recognition. The head of the torpedo appeared to have been driven right through the ship by the explosion as on the starboard side there was a small hole 3 feet in diameter. The vessel in all shipped 500 tons of water, and it was calculated that she must have foundered had she been at sea. Though she was ten years later in date than the *Blanco Encalada*, her compartment system was not of sufficient strength to give her proper security against torpedo attack. The torpedoes used against her were, however, of great power for that date, when the standard British torpedo carried a charge of only 79 pounds of gun cotton.

The main strategical lesson of the desultory operations in this war is the impotence of a naval force without proper bases and land support and without some military force. Mello failed because he could not collect an army and because he never had any considerable number of adherents. His ships did not carry large enough crews to enable them to send ashore strong landing parties. If his vessels were not sunk at the outset by the forts, which mounted numerous and powerful guns, it was because of his threat to bombard the capital, Rio de Janeiro, and because neutrals induced Peixoto to adopt cautious tactics. The ease with which the insurgent vessels on many occasions ran past the forts was remarkable, but at that date quick-firing artillery was in its infancy, night sights had not been developed, and the ammunition was probably indifferent. Nor is it certain that either side wholeheartedly sought to destroy the other.

CHAPTER VI

Japan-China War—State of the two Navies—Action off Asan—the “Tsi-Yuen” beaten—“Kowshing” sunk—Chinese Fleet puts to sea—The Japanese Appear—Battle of the Yalu—Heavy Chinese Losses—Japanese Flagship out of Action—Casualties and Comparisons—Powerful Chinese ships Escape—Port Arthur Captured—Wei-hai-wei Attacked—Greek and South African Wars—Taku Forts.

IN July, 1894, war in the Far East between Japan and China began without any formal declaration. China claimed the right to treat the state of Korea as her vassal and tributary, while Japan insisted upon its independence. By a treaty concluded in 1885 either Japan or China might send troops into Korea whenever the other Power sent them, and notice of the despatch of troops had to be given. On June 8, 1894, 1,500 Chinese troops were despatched at Asan, with proper notice to Japan. The Japanese reply was to send a superior force (5,000 men) to the neighbourhood of Seoul, the Korean capital, disembarking them at Chemulpo.

China next called on Japan to withdraw her troops, which Japan refused to do, whereupon the Chinese Government despatched reinforcements to Asan, apparently with the object of collecting a much stronger force and overwhelming the Japanese. British and Chinese steamers were engaged to carry the Chinese troops. This movement was regarded by Japan as an act of war and led her to take naval action against the Chinese, after she had warned China on July 14 that she was “relieved of all responsibility for any eventuality that may in future arise out of the situation.”¹

Control of the sea was essential for successful operations in Korea. Japan being an insular state could only reach Korea by sea. China was in contact on land with Korean territory, but the Chinese and Korean roads were so execrable, the distances so great, and the difficulties of supply for any con-

¹ Vladimir, *China-Japan War*, p. 348.

siderable body of troops so serious, that from the Chinese standpoint Korea was practically an island and could only be reached by sea. For the Japanese China entertained a sovereign contempt; in outward appearance the war was one between a giant and dwarf; but it very quickly was proved that the giant had feet of clay and that the dwarf was an unusually stout fellow who had not mimicked but assimilated the military knowledge of the West. Either side had a small navy, but the Japanese was on paper much the smaller and weaker. It was characteristic of the disorganisation existing in China that of the four squadrons in the Chinese Navy only one was employed, the force built and prepared by Li Hung Chang.

It contained two armoured vessels of battleship type, the CHEN-YUEN and TING-YUEN, launched in Germany in 1882 and 1881, and each mounting two pairs of 12-inch Krupp breech-loading guns in two barbettes so disposed that in theory all four guns in each ship could fire ahead, astern or on either broadside. The armour, of compound character,¹ was represented by a small patch 12 to 14 inches thick on the waterline, and by 12-inch plates on the barbettes. The guns had thin bulletproof shields² but the gunners were much exposed. The Chinese squadron included five other small vessels with some armour, carrying an assortment of guns of which the heaviest were 10-inch and 9-inch weapons. It had also available half-a-dozen sloops.

Some years before, under Captain W. M. Lang, of the British Navy, it had been a serviceable fighting force, with good discipline and a high standard of efficiency. After his removal, it had greatly deteriorated. Externally it looked formidable enough as its ships were kept well painted and outwardly smart, and its gunners had not entirely lost their skill. But peculation had set in and the supply of ammunition was bad—at the Yalu only about fourteen rounds of shell per heavy gun.³ The two powerful armoured ships fired all their ammunition and the CHEN YUEN had only three common shell left in her magazine at the close of the battle. Of their projectiles many were of cast iron and where they contained any explosive were filled with bad powder. Some, indeed, were found to have been filled with

¹ Iron faced with steel.

² War photographs show the shields in place at the date of the Yalu, though there were reports that they had been removed.

³ The actual supply was fifty-five 12-inch shells each for the TING-YUEN and CHEN YUEN and about fifty solid armour piercing projectiles, each in addition.

cement or coal dust. The other ships were similarly equipped. In command was a Chinese officer of cavalry, Admiral Ting, who knew little of naval matters though he had one or two competent foreign advisers. He was a man who won the respect of Europeans by his courage, but his habits were oddly unconventional; he is said to have whiled away his time throwing dice with the sentry outside his cabin.

The Japanese Navy had been trained and organised under British officers, but had reached that point of development where it could dispense with foreign advice. It had little prestige in Japan, but its quality was excellent, as its officers were largely drawn from the Satsuma clan, which produced good fighting men. It was commanded by Vice-Admiral Ito, who was, in 1894, fifty-one years of age, a most efficient and cool leader. Owing to the scanty resources of the Japanese nation at that date, the navy included no effective armoured ships, though it had three old vessels with armour in the *Fusoo*, *Hiyei* and *Kongo*, dating back to 1877 and 1878. The war at sea was, therefore, to be one between a navy possessing armoured ships and a navy without them.

The best Japanese ships were of the protected cruiser class, a type of vessel which carried no vertical armour, but had a strong steel curved deck sheltering the engines, boilers and magazines against shell fire. This deck was carried some feet below the water-line at the sides of the ship. The guns were in most cases protected by steel splinter-proof shields, open at the back. Of these vessels the *Yoshino* was the most modern with a broadside of three 6-inch and four 4.7-inch quick-firing guns. The quick-firer had then only recently been introduced; it was capable of discharging five, six, or, in highly skilled hands, even ten rounds a minute,¹ and it used smokeless powder. It was from five to ten times as rapid in its discharge as the older breech-loaders of the same calibre. The *Akitsushima* was similar to the *Yoshino* but smaller, with one fewer 4.7-inch gun on the broadside.

To meet the Chinese armoured ships with 12-inch guns, the Japanese had obtained from France three protected cruisers of peculiar type, each carrying one long and extremely powerful 12.6-inch gun in a barbette protected by 12-inch steel, with strong 4-inch shields sheltering the gunners. The big gun was forward in the *Hashidate* and *Itsukushima* and astern in the *Matsushima*; these ships also mounted on

¹ In 1887 ten rounds were fired in 47½ seconds, with a 4.7-inch gun in the *Handy*. Sir A. Noble. *Artillery and Explosives*, p. 504.

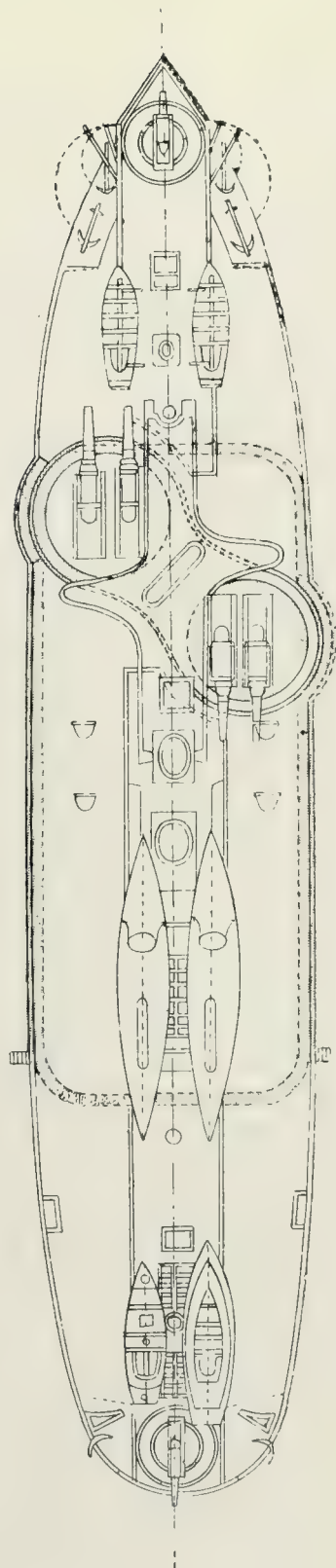
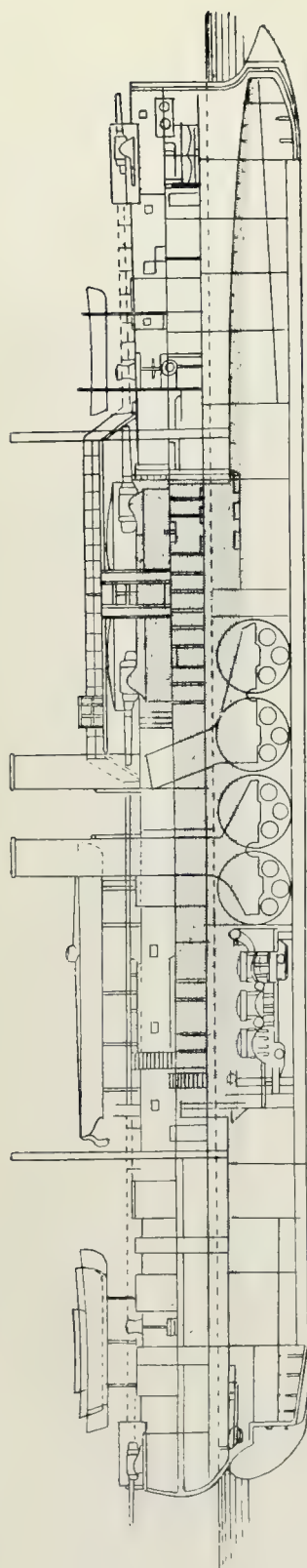


PLATE 6

[p. 92

ELEVATION AND DECK PLAN OF THE TWO CHINESE BATTLESHIPS "CHEN YUEN" AND "TING YUEN"

The surface protected by armour is small but a strong armour deck shelters the lower part of the vessel. The four heavy guns can fire ahead, or very nearly so.

each broadside five or six 4.7-inch quick-firers. Two older protected cruisers, the *Naniwa* and *Takachiho*, mounting on the broadside two 10-inch and three 6-inch guns, were powerful and efficient units.

The doubtful question for the Japanese command in the war was whether ships without vertical armour would be able to defeat armoured ships. By Farragut's principle, that the best protection is given by an effective fire on the enemy, the Japanese cruisers with the power to discharge a hail of projectiles from their quick-firing batteries, had a good chance of disabling their adversaries. The problem, however, was not thoroughly tested in this war owing to the bad Chinese ammunition. Needless to say the Japanese ammunition was good and the machinery in the Japanese fleet was kept in excellent order. The actual sea speeds in the case of both fleets were distinctly below trial figures, more so, however, in the Chinese than in the Japanese fleet.

The Japanese Navy had the support of a considerable and growing merchant fleet with good docks. The Japanese people take kindly to the sea and are excellent sailors. The Chinese mercantile marine was small. China had two fortified bases on the Gulf of Pechili, near the scene of action, in Port Arthur and Wei-hai-wei, each of which was defended on the seaward face by strong works mounting heavy Armstrong and Krupp guns. (See Plan X, page 108.)

On July 25, the Japanese Flying Squadron under Rear-Admiral Tsuboi, consisting of the *Yoshino* (flag), *Naniwa* and *Akitsuishima*, arrived off Asan. It had orders to stop the transport of Chinese troops to Korea by force, if necessary, and to deal with any Chinese warships at Asan, which port was then in Chinese hands. The Japanese land forces had been ordered simultaneously to attack the Chinese detachment at Asan. Tsuboi's three ships had left Sasebo on July 23. That a detachment so small should have been despatched on a mission of such importance, where, if the Chinese knew their business, there was risk of meeting the whole Chinese fleet, shows that the Japanese strategy at this date was by no means sound.

The prudent course was to strike with every available ship at the Chinese Fleet and fight a decisive battle or force the hostile fleet into port where it could have been rendered helpless. The risky course was to waste strength on a subsidiary object. For if the Japanese Fleet won at sea, the Chinese troops in Korea would have to beat a hasty retreat

or could be speedily dealt with by the Japanese land forces, which were superior in number and far better armed and organised. But while the art of war, as Napoleon said, is a simple matter, the resolute application of strategic principles is difficult. The Japanese command had this excuse, that the situation was a peculiar one, with considerable Japanese land forces ashore in Korea; and a large part of Japan's small navy was occupied in convoying transports and guarding the communications of their expeditionary troops.

As it happened the Chinese naval command acted in the same haphazard manner. Ting, instead of putting to sea and challenging battle with his whole available force, scattered his badly equipped ships. He detached two of his feeblest vessels, the protected cruiser TSI-YUEN (Captain Fong) carrying on the broadside two 8.3-inch and one 5.9-inch breech-loading Krupps, with a trial speed of 15 knots, and the sloop KWANG-YI (three 4.7-inch quick-firers) to convoy two transports. These Chinese warships reached Asan in safety on July 24, and next day they were steaming back to Taku when, at 6 a.m. they sighted the three Japanese warships. Which party opened the action and began the war is not a question of supreme importance; each accused the other of the first hostile act. At 7.5 a.m. the two little squadrons were 3,300 yards apart, at which long range (for the Japanese quick-firers) the action opened. It had much the results that might have been expected. The Chinese with their three heavy slow-firing guns in the TSI-YUEN were smothered with shells from the numerous Japanese weapons, shooting probably four or five times as fast as the Chinese.

The Japanese fire was exceedingly accurate in view of the conditions, for one of the earliest hits was on the weak conning tower of the TSI-YUEN (plated with 3-inch steel). The first lieutenant and a sub-lieutenant were killed, and the steering gear, voice-pipes and engine-room telegraphs were wrecked by this projectile. Another shell glanced upward from the thin armour deck and entered the 8.3-inch gun barbette from below, damaging the ammunition hoist and putting one of the guns out of action. A third projectile, a shell with a base fuse, struck the rear of the thin armoured shield on this barbette and burst inside, killing 7 officers or men and wounding 14.¹ What skilled gunnery ratings the

¹ Photographs of the hits on the TSI-YUEN in *Marine Rundschau*, v, p. 518 ff. This account differs as to the casualties from mine, which is from European sources, in the Chinese Fleet.

TSI-YUEN possessed were wiped out by this hit. The boats were struck and set on fire; they had not been properly prepared for action or filled with water; many shells entered between decks, and large holes were blown in the vessel's side. Most of the Chinese crew took refuge below but there no security was to be found. No mention is made in the Chinese account of hits on the water-line.

As soon as the TSI YUEN could be got under control after the hit on the conning tower, she was headed for Wei-hai-wei, with only a single gun, her stern 5.9-inch weapon, in action, pursued by the *Yoshino*. The Chinese vessel was badly on fire in several places and was much slower than the *Yoshino*. But she got away because the Japanese preferred to remain at long range, and failed to close with this badly damaged and beaten ship. The action seems to have been fought with the two combatants steaming on parallel courses.

As for the KWANG-YI, she was very early in the battle set badly on fire and was compelled to run aground near at hand where she was speedily destroyed by the Japanese. The Chinese claim to have hit the *Yoshino*'s bridge and conning tower twice at least, but the claim had no foundation; the *Yoshino* suffered no damage, which fact renders her failure to destroy the TSI-YUEN the more inexplicable. One shell only struck her and that, after passing through the upper deck, dropped on the protective deck without exploding. The odds in favour of the Japanese were enormous.

	Tons.	Speed Knots	Launched	Weight of Broad- side. ¹	Men	Casual- ties.
<i>Yoshino</i>	4150	23	1892	480lb.	360	0
<i>Akitsuishima</i>	3150	19	1892	435lb.	330	0
<i>Naniwa</i>	3650	18	1885	1300lb.	357	0
TSI-YUEN	2355	15	1883	519lb.	250?	41
KWANG-YI	1030	16.5	1891	108lb.	200?	182?

The casualties in the TSI-YUEN were stated to have been 16 killed including 3 officers, and 25² wounded. The hits were exceedingly numerous, and were all apparently from the 6-inch and 4.7-inch guns, so that the two Japanese 10-inch guns in the *Naniwa* must have missed her. Externally the

¹ Stated per minute (which would be the soundest comparison) the figure would be for close action, with rapid fire—*Yoshino* 3000 lb., *Akitsuishima* 2800 lb., *Naniwa* 500, TSI-YUEN 200 lb.

² *Marine Rundschau*, loc. cit. 19 severely wounded, 16 killed.

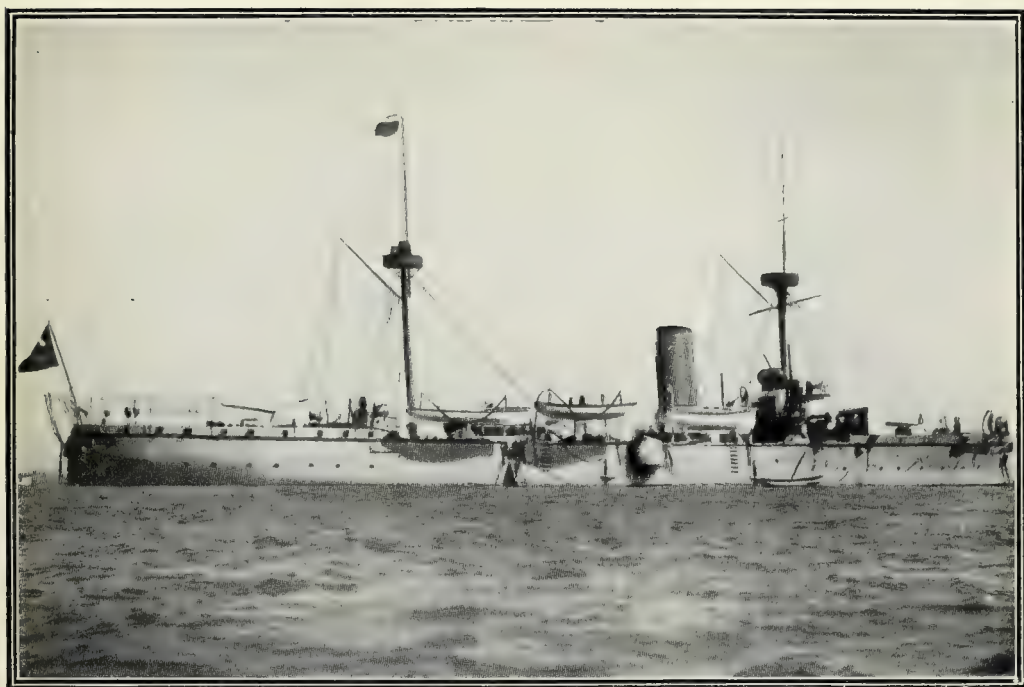
TSI-YUEN looked a complete wreck and all who saw her were astonished that the Japanese had allowed her to escape. A careful examination showed that the really serious damage was not beyond easy repair, as many of the Japanese shells had failed to explode, and she was ready for sea again on August 7. The KWANG-YI's casualties were extremely heavy and only 18 of her crew, most of them badly wounded, are said to have escaped. The Japanese suffered no casualties. The duration of the engagement was seventy minutes.

The action was nearly over when the Japanese sighted two other vessels, and Tsuboi detailed the *Akitsushima* and *Naniwa* with orders each to select one and give chase to it. The two were the Chinese sloop TSAO-KIANG (572 tons, four old pattern guns) and the British steamer Kowshing, hired by the Chinese Government as a transport, and full of Chinese troops. The *Akitsushima* took the TSAO-KIANG in charge, chased her, and after a few shots compelled her surrender. She was a vessel which ought never to have been employed in work where there was risk of contact with the powerful Japanese cruisers.

The *Naniwa* turned her attention to the Kowshing which was flying the British flag. She was a steamer of 1,355 tons gross, owned by Messrs. Jardine and Matheson, and chartered by the Chinese Government. She was commanded by Captain Galsworthy, and had left Taku on July 23 for Asan with 1,200 Chinese troops, twelve guns, two Chinese generals and Major von Hanneken (a German in the Chinese service) on board.

In the morning of July 25 she sighted a Chinese warship steaming fast west, which had evidently been in action. This ship must have been the TSI-YUEN, and had it signalled to her a warning, she could have escaped. A little later she saw Japanese warships, and one of them, the *Naniwa* (Captain Togo, afterwards the famous admiral) approached her, fired two blank shots to warn her to stop, and followed this with the signal to anchor. A Japanese party was sent to examine her and reported that she had troops on board, whereupon she was ordered from the *Naniwa* to weigh and follow the Japanese cruiser. When Captain Galsworthy attempted to obey the order the Chinese on board refused to allow him to steam after the *Naniwa* and threatened his life, demanding to be taken back to Taku.

Galsworthy signalled to the *Naniwa* to send a boat to the Kowshing and remove the Europeans. This Togo declined



THE CHINESE CRUISER "CHIH-YUEN"

[See p. 103

She fought at the Yalu where she apparently attempted to ram the *Yoshino*, but was badly hit, when a great explosion took place and she sank.



THE JAPANESE LIGHT CRUISER "YOSHINO"

[see p. 198

Famous as one of the "Greyhounds" of the Japanese Fleet, she did good work in the wars against China and Russia. In 1904 she was sunk in a fog by collision.

to do owing to the risk of an attack on his boat. For nearly four hours an animated exchange of signals between the two ships continued, as Togo was anxious to avoid needless sacrifice of life and the utter helplessness of the Kowshing was obvious. But at last, because he thought there was risk of the main Chinese fleet arriving, he hoisted the red flag, and at 1.10 p.m. ordered one torpedo and his two 10-inch and three 6-inch broadside guns to be discharged at the Kowshing. The distance between the two vessels was some 500 yards. The torpedo failed to hit.¹ There was an explosion abreast of the Kowshing's engine room; "pieces of coal, splinters and water filled the air"; but this may have been caused by the detonation of the 10-inch shells from the *Naniwa*. At 1.15 the Kowshing began to sink slowly stern foremost.

The Japanese cruiser lowered two boats to rescue the Europeans, three of whom were picked up, but the boats were fired upon by Chinese soldiers in the sinking steamer. Certain of the Europeans, including Hanneken, alleged that the Japanese fired on the Chinese in the water. There is a conflict of evidence on this important point, and according to Captain Galsworthy's sworn statement the charge was not true; the Chinese killed many of their own people.² Hanneken and 512 Chinese managed to save themselves by swimming to neighbouring islands, or clinging to wreckage, but all the other Chinese on board perished.

A serious international question was raised by the sinking of this ship, and Vice-Admiral Sir E. R. Fremantle, commanding the British China Squadron, sent a note to Admiral Ito calling on him not "to board, visit or to interfere in any way with British merchant vessels," and added that he had directed the warships under his orders to protect such vessels and not allow them to be molested in any way. Such action would have involved a great interference with belligerent rights, and the British Government very properly declined to adopt its admiral's point of view, which would have established the right of convoy for neutral merchantmen in war and have produced consequences of extreme gravity.

The Kowshing's destruction was regarded as legitimate by the British authorities in view of the facts that she was engaged in military operations, that a state of extreme tension between China and Japan was known to exist, and that the Chinese

¹ Chief-Officer Tamplin and Captain Galsworthy both say it missed, and this is in accord with Japanese official information though Hanneken states that it hit. Vladimir, pp. 361, 368.

² Cf. also Hanneken's statement on this head. Vladimir, p. 357.

troops on board would not permit her to be taken into a Japanese port to be there condemned. Had 1,200 Chinese troops with a skilled European officer and twelve guns reached Asan, the Chinese force at that point might have beaten the Japanese, so that Togo had reason for his action.

The modern doctrine is that as visit and search of neutrals at sea are only permitted in war, a summons to a neutral to stop and submit when delivered by a vessel which is clearly in the naval service of her state, is equivalent to notice that war exists. By the Hague Conventions of 1907 proper declaration of war has been declared binding on belligerents, but neutrals are informed that they must not rely on the absence of such declaration or notification.

The formal declaration of war was issued by both China and Japan, simultaneously, on August 1. Meanwhile, on July 26, after the TSI-YUEN had reached Wei-hai-wei, Ting with the bulk of the Chinese Fleet put to sea. His vessels had been carefully prepared for action and the barbettes in the two larger armoured ships had been given extra protection with sacks of coal. Ting issued orders that no quarter was to be given to the Japanese; his flag was hoisted in the TING-YUEN, and both she and the CHEN-YUEN, which had a European officer aboard, Captain McGiffin, were fairly manned with "plucky, well-trained" men, according to McGiffin. The Chinese squadron saw nothing of the Japanese—probably because it did not go very far—but returned to port after a three days' cruise in stormy weather. The Japanese as yet did not trouble to watch it because they were so busy covering the movement of troops to Korea.

Ting was anxious to fight, but he was ordered by Li Hung Chang not to cruise to the east of a line drawn from Wei-hai-wei to the mouth of the Yalu. The Chinese naval force was practically effaced, and on August 10, to test its readiness to fight, the Japanese in full strength appeared off Wei-hai-wei and fired a hundred rounds at the forts at extreme range, thus wasting valuable ammunition. The Chinese gunners in the forts replied feebly, without making any hits, and the Chinese warships, in consequence of Li Hung Chang's order, did not stir. To avoid risking its fleet, the Chinese Government sent reinforcements by land to Korea, with the result that its operations on land were paralysed, because of the time taken to move these troops.

The Chinese Government, early in September, came to the conclusion that defeat was certain if it could not send its

forces by sea to Korea. But instead of ordering Ting to do what he professed to desire—give battle to the Japanese Fleet—the Chinese authorities instructed him to cover the movement of a fleet of transports, five in number. These transports steamed from Taku to Talien Bay, near Port Arthur, where Ting was ready with his whole effective fleet. Hanneken, who was with him, states that his wish was to take the warships to the Korean coast and to search for the Japanese before the transports moved. In consequence of reports of two large Japanese warships being off Wei-hai-wei, he proceeded thither on September 14, and remained there several hours. No Japanese warships were seen. When his fleet returned to Talien Bay he learnt of the rapid advance of the Japanese land forces in Korea, and determined at once to escort the convoy to the Yalu with his squadron which was prepared for battle: boats were left ashore and some of the wood-work was removed.

At 1 a.m. of September 16 he put to sea with the convoy inshore and the fleet in a parallel line further out. That same day, by a curious coincidence, Admiral Ito with the Japanese Fleet left the Pingyang inlet, whither he had been convoying transports, and steamed towards Port Arthur to ascertain what the Chinese Navy was doing. So far he had given it very little attention, an omission for which Ting ought to have made him pay very dearly. Before he began his cruise, Ting's transports had reached the mouth of the Yalu river, seventy-five miles north-west of the Pingyang inlet, and proceeded into it to disembark the troops. They were accompanied by two of Ting's smaller warships, the PING-YUEN and KWANG-PING, with two torpedo boats. The rest of the Chinese squadron remained off the river on guard, anchored for the night. They were still there when Ting and his staff next day (September 17) made out a dense cloud of smoke to the south-west about 10 a.m. The fires had been banked in the Chinese squadron, but steam was at once raised, and weighing anchor the squadron proceeded towards the smoke at a speed of 7 knots.

Ito meanwhile had steamed to Haiyun island, ninety miles east of Port Arthur in Korea Bay, and searched its harbour early in the morning of September 17. He found no signs of the Chinese and therefore steamed north-east to Talu island, nearer to the mouth of the Yalu, until at 11.30 a.m. he saw, east-north-east, a moving cloud of smoke which, as he judged, must proceed from a Chinese squadron. He evidently had

information that the Chinese force was at sea and was likely to be found near the Yalu, and he had now placed himself between it and its bases, so that he could compel it to fight. The Japanese steamed towards the smoke cloud at a speed of 9 or 10 knots. The weather was good with a light easterly breeze scarcely rippling the sea. Rain fell just before dawn and cleared the air so that the visibility was good.

The Japanese force consisted of ten warships with, in addition, a gunboat, *Akagi*, and one armed mercantile steamer, the *Saikio Maru*, of no naval value. It was organised in two divisions, the Flying Squadron under Rear-Admiral Tsuboi with the *Yoshino* (flag) *Takachiho*, *Akitsu-shima* and *Naniwa*, all protected cruisers—easily able to do 14 or 15 knots at sea; and the Main Squadron under Vice-Admiral Ito himself, with the *Matsushima* (flag), *Chiyoda*, *Itsukushima*, *Hashidate*, *Fusoo* and *Hiyei*. The first four of these ships were good for 14 to 15 knots, but the last two could not steam more than 10 or 11 at this date, and they were old and feeble craft while their antiquated iron armour gave little protection against the heavy Chinese guns. The gunboat *Akagi* was yet slower and feebler; the armed steamer *Saikio Maru* was good for 14 knots.

Ito ordered these two vessels to take station to the port side of his Main Squadron, away from the enemy, where they would be less exposed. His decision was to attack in line ahead and to steam past the northern flank of the Chinese squadron. But during his approach the Flying Squadron was ordered to steer for the enemy's centre, so as to keep the Chinese in a state of uncertainty about the point where the attack was to be delivered. Ito's tactics so far were wise and well thought out; they accorded with the armament of his ships, which were so planned as to bring most of their guns to bear on the broadside.

When the Chinese squadron weighed it formed in an irregular line abreast which appears to have taken the shape of a blunt wedge, slightly resembling Tegetthoff's formation at Lissa. Two of its ships, the YANG-WEI and CHAO-YONG, were slow and awkward in weighing and were some distance behind the other Chinese vessels to the north. The other vessels in Ting's line abreast from north-west to south-east were the CHING-YUEN and LAI-YUEN, each bringing two 8.3-inch guns to bear ahead; the two big ships CHEN-YUEN and KING-YUEN (flag) in the centre, with their four 12-inch guns apiece, and tolerable armour; the KING-YUEN and

CHIH-YUEN both firing ahead two 8.3-inch guns; and on the port wing the sloop KWANG-KAI and the cruiser TSI-YUEN. The TSI-YUEN did not keep her station, either because she was slow in weighing or because she had engine troubles, and she was well to the rear of Ting's line. This was never a well-formed one and looked as if it were indented.

Line abreast was chosen by Ting's advisers because the Chinese ships were designed and built for it, and because a too hasty study of the battle of Lissa had led to the belief that line abreast was tactically superior to line ahead. A quarter turn, executed simultaneously by the vessels in a line abreast, will bring them into a line ahead, so that the formation before battle was not a matter of overwhelming importance. What was serious, however, was the Chinese admiral's decision to fight in line abreast and his failure to station powerful vessels on his wings, which were likely to be assailed by an active enemy. His inshore squadron (the PING-YUEN, KWANG-PING and the two torpedo boats FU-LUNG and CHOI-YI) was several miles away and does not seem to have made any effort to join him.

Each combatant had ten war-vessels in line; the Japanese squadron was superior in average size and speed, and was also slightly more modern. Unless the Chinese could hit at the very outset with their heavy guns, the Japanese quick-firing weapons gave Ito a great advantage; and for hitting with heavy guns at the outset line abreast is not a good formation as the range alters rapidly when a fleet approaches an enemy end-on. At 12.50 p.m. the Chinese opened fire from their heavy guns at over 6,000 yards on the Flying Squadron but made no hits. Tsuboi, under this fire in the *Yoshino*, first steered towards the Chinese centre and then bore away to port as he neared the Chinese line, heading for its northern or starboard wing at 14 knots. The east wind blew the dense coal smoke of the leading Japanese ships down their line and screened it to some extent from the Chinese, whose gunners, however, were able to see their enemies' masts. The Japanese ships were painted white and the Chinese a dark grey which was almost black, so that mistakes of identity were not to be feared. (See Tables IX-XII for details.)

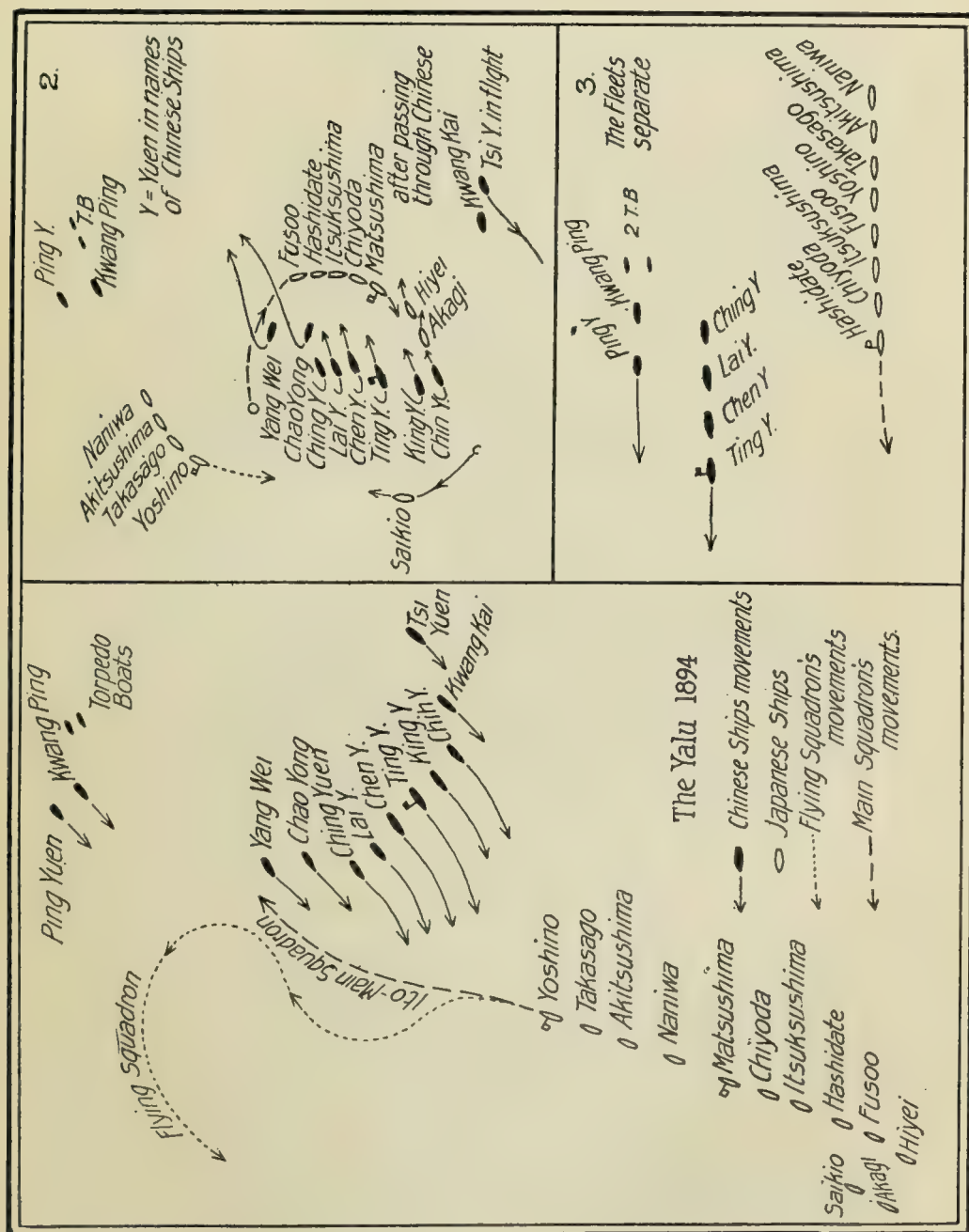
At 3,000 yards Tsuboi opened fire and turning somewhat to starboard passed round the starboard wing of the Chinese Fleet pouring a terrible hail of shells from his quick-firing guns into the YANG-WEI and CHAO-YONG. The Main Squadron followed and passed across the Chinese front,

firing violently into it, while the two big Chinese armoured ships, CHEN-YUEN and KING-YUEN, bore down towards Ito as if intending to ram. All order in the Chinese line was lost almost at once; it was a mob of ships with no manœuvring power and unable, from the radical defect in its battle-formation, to use its artillery with success. As the Chinese heavy ships advanced, the *Hiyei*, which was last in Ito's line, was in great danger; her captain took the boldest course which in war is generally the wisest, and turned her resolutely into the Chinese line, through which he steamed avoiding two torpedoes which were fired at him. The *Akagi* kept on along the Chinese front, and was badly hit though not totally disabled. The *Saikio Maru* bore away to port, but she, too, was in serious peril.

The Main Squadron with the rest of its ships passed round the Chinese northern flank. Both the YANG-WEI and CHAO-YONG were in a desperate condition, hit repeatedly, on fire, and unable with their bad ammunition to offer any serious resistance. The YANG-WEI ablaze steamed off towards Talu Island, where she ran aground after she had been further damaged by a collision with the TSI-YUEN. The CHAO-YONG, burning furiously, took a heavy list to starboard, as the result of a collision in the smoke and confusion—probably with the TSI-YUEN—and sank at 2.23 p.m. during the battle. About this time the Chinese cruiser TSI-YUEN, on the excuse that one of her 8.3-inch guns was disabled, deserted her admiral, and steamed off to Port Arthur, leaving the battle, for which misconduct her captain, Fong, was subsequently beheaded. She had suffered a certain amount of damage in her collisions with Chinese ships. The KWANG-KAI sustained a heavy fire from the Main Squadron as it passed round the Chinese squadron, and was driven off in flames. She vanished from the scene and ultimately ran aground near Port Arthur.

Thus at the beginning of the action four of the weaker Chinese ships had been driven off or rendered ineffective, and Ting's force in line had fallen to six ships. Some minutes earlier the Japanese Flying Squadron turned sharply to port, and circled to support the *Akagi* and *Saikio*, and also, as Tsuboi stated, to deal with the PING-YUEN and KWANG-PING, and the two Chinese torpedo boats, which were now very cautiously approaching from the north-east.

The effect of this movement was to bring Tsuboi to the north of the six main Chinese ships while Ito was to the south



of them. Several of the Chinese ships with Ting were badly on fire. It was at this point that Tsuboi engaged the CHIH-YUEN which steamed forward from the Chinese line as if intending to ram the *Yoshino*. A rapid fire was poured into her and a great explosion on board her was noted by some of the observers of the battle; at 3.30 p.m. she sank, apparently as the result of water-line injuries from the 6-inch and 4.7-inch projectiles of Tsuboi's ships, though possibly the explosion was caused by a torpedo or by a Japanese 12.6-inch shell. The CHING-YUEN and LAI-YUEN were ablaze about this time but their crews fought on. At 3.50 the Flying Squadron caught the KING-YUEN which had sheered out of the battle and attacked her at ranges of from 2,500 to 3,300 yards, set her badly on fire, tore her side open with shells, and finally sank her about 4.50. She went down stern foremost, after a violent explosion, caused probably by her boilers.

The Japanese, however, had not escaped without heavy damage. At 2.34 the *Matsushima* attacked the PING-YUEN and was hit by a 10.2-inch shell from the Chinese ship which killed four men. At 3.26, while engaged with the two big Chinese armoured ships at the short range of 2,500 yards, she was struck by a 12-inch steel shell from the TING-YUEN and also simultaneously by a solid projectile of the same calibre. The shell burst and detonated some seventy charges for the 4.7-inch guns, which were lying ready for use near a scuttle on the gun-deck. It killed or wounded 100 officers and men, of whom 52 died, and set the ship badly on fire. She steamed out of action with the Main Squadron, which, however, returned without her as soon as Ito had transferred his flag to the *Hashidate*. The *Akagi* and *Hiyei* were also both out of action, though neither was now in any great danger.

In the final phase of the battle the Japanese Main Squadron circled round the surviving Chinese ships, now reduced to four (TING-YUEN, CHEN-YUEN, LAI-YUEN and CHING-YUEN) which had fired all the ammunition for their smaller guns and had only a few rounds left for their heavy weapons. The range of the fighting was placed at about 2,500 yards by European observers. The Japanese Flying Squadron in this phase did not support the Main Squadron but gave cautious chase to the fugitive Chinese ships. This was a serious mistake in the circumstances, as the all-important aim was to destroy or capture the two big Chinese vessels, both of which were in extreme difficulties. The TING-YUEN was still

badly on fire and had been hit by over 200 projectiles. Her fore military top was shattered and all in it were killed.

The CHEN-YUEN showed over 150 hits; she was on fire dangerously in several places and had the hydraulic gear of one of her heavy guns disabled, besides a 6-inch gun put out of action by accident. Her upper works were riddled and she looked like a wreck; below the water-line her hull was leaking badly so that when she returned to port she was 3 feet down by the bows. The state of these two ships was such as to invite torpedo or ramming attack, but none was attempted by the Japanese against them. Nor did the Japanese ships close in on them when they were thus *in extremis* and finish them off with their quick-firers.

Ito's best chance when almost all the 12-inch ammunition was exhausted in the Chinese ships was to attack them at close quarters. This was his intention; when his flagship was hit and so badly damaged he signalled to his other vessels to pursue and close, but the signals were imperfectly seen or not understood,¹ very much as happened afterwards at the Dogger Bank. What he himself reported at the time was that, "seeing my Flying Squadron was separated by a great distance from my Main Squadron and considering that sunset was approaching, I discontinued the action and recalled my Flying Squadron," (at 5.30 p.m.). Assembling his force, which consisted of eight ships (the *Matsushima*, *Hiyei*, *Saikio Maru*, and *Akagi* having been despatched back to his base for repairs) he formed it up on a parallel course to the Chinese squadron, which now consisted of six units (TING YUEN, CHEN-YUEN, LAI-YUEN, CHING-YUEN, PING-YUEN, KWANG-PING, and two torpedo boats) but to southward of the Chinese and well out of range.

He proceeded westwards whither Ting was also steering, intending as he says, to renew the battle next morning. He was anxious to avoid a night action thinking he would be at a disadvantage because two torpedo boats were with the Chinese squadron, while he had none. But during the night the Chinese vanished, exactly as the Germans did twenty years later, after Jutland. Ting, after steering at first for Wei-hai-wei, had turned in the dark and proceeded to Port Arthur, where his battered ships arrived safely and were taken in hand for repairs. At daybreak Ito could discover no sign of the Chinese squadron, and so he steamed back to

¹ Official Japanese information.

the scene of action and there found and finished off the YANG-WEI.

The victory was thus far from Nelson's ideal, annihilation of the enemy. The Japanese, owing to mistakes which were perhaps inevitable in war, allowed the two big Chinese armoured ships' escape, to cause them considerable further trouble. On the Chinese side, five ships were destroyed—KING-YUEN, CHIH-YUEN, CHAO-YONG, YANG-WEI, and KWANG-KAI, and the first three were sunk by gun fire alone. In the Chinese ships which survived the battle the loss in men was surprisingly light. The figures given by the Japanese naval staff are as follows:

	Killed.	Wounded.	Total.	Crew. ¹
TING-YUEN	17	38	55	330
CHEN-YUEN	13	28	41	330
CHIH-YUEN (s).....	246	—	246	246
KING-YUEN (s).....	232	—	232	239
LAI-YUEN	15	15	30	202
TSI-YUEN	5	10	15	180
CHAO-YONG (s)	125	—	125	150?
YANG-WEI (s)	57	—	57	150?
CHING-YUEN	2	16	18	202
PING-YUEN	6	15	21	200
KWANG-KAI (s)	Unknown	—	—	150?
	718	122	840	2373

(s)=sunk or driven ashore.

In the KING-YUEN 7 men are believed to have been saved; otherwise both in her and in the CHIH-YUEN the entire crew perished. In the CHAO-YONG a number of men were taken off by the two Chinese torpedo boats; and in the KWANG-KAI the loss does not seem to have been serious. She ran away before she was badly hit.

About the exact number of hits on the Chinese ships and the effect produced there is no satisfactory information. A Japanese officer at the date of the battle estimated the Japanese hits at fifteen per cent. of the rounds fired, and the Chinese hits at ten per cent. The present Japanese view is that the Japanese hits did not exceed ten per cent. of rounds fired, and the Chinese hits five per cent. These figures

¹ Nominal: in several ships not exactly known, and my own figures in this column. Allowing for torpedo boats and larger crews than the peace service ones in some of the ships, the Chinese total would be between 2,500 and 2,600 men.

show good shooting with the guns and the gunnery methods of that period, even though the range was comparatively short. The Japanese heavy 12.6-inch shells do not appear to have inflicted any serious damage on the two Chinese battleships.¹ The Chinese are known to have fired 197 12-inch projectiles, half of them shot, not shell, and they made in all ten hits, four with shell and six with shot. Of these two were near the water-line.

One shell and two shots struck the *Matsushima*, the shell causing the heavy casualties which have already been mentioned, and putting her out of action; one shot passed through the ship without causing any serious injury. A 10.2-inch projectile from the PING-YUEN killed four men at the port torpedo tube and broke up against the barbette; it proved to be hollow and contained cement. The *Fusoo* was hit by fragments from one shell which ricocheted, and by two shots which did little damage; the *Hiyei* was struck by a shell which burst in the ward room where the wounded were receiving attention, killing or mortally wounding 20 men and setting the ship on fire. Four 12-inch projectiles struck the *Saikio Maru*, destroyed her steam steering gear and for some minutes made the vessel unmanageable.

From their smaller guns the Chinese fired 484 rounds and secured with them fifty-eight hits on the Japanese vessels, no fewer than twenty-two of them on the *Hiyei*. Table XII gives the Japanese killed and wounded and shows that the *Matsushima* suffered by far the most with 113 casualties. The cruisers of the Flying Squadron escaped with relatively slight loss. The two hits on or close to the water-line mentioned in Japanese ships were in the *Takachiho* and *Chiyoda*. In neither case was serious damage caused.

Three torpedoes were fired at the *Saikio* and two at the *Hiyei* without any results. Thus the seventy-six torpedo tubes in the two squadrons had no influence on the action, and their weight would better have been given to a larger number of guns or a greater supply of ammunition.

				Broadside—	
	Ships.	Ships lost.	Casualties.	guns of 4.7in. and upwards.	Time of action
Japanese Squadron	12	0	298 ²	7,000lb	5 hours
Chinese ,,	12	5	838	12,750lb	

¹ Unless the CHIH-YUEN was sunk by one of these big projectiles.

² 90 killed 208 wounded.

There can be no doubt which side was victorious, though the Chinese claimed that the battle was a drawn one. But the losses of Chinese ships and men were so heavy as to render this claim ridiculous. The artillery preponderance of the Japanese, tested by weight of metal discharged in a given time was two to one,¹ but in heavy guns the Chinese had eight to three, and in the weight of metal fired in a single round on the broadside the Chinese were much superior. The smoke throughout the engagement was dense and rendered it difficult to see what was happening. Only the *Yoshino* used cordite. Speed played an important part in the actual battle; the Japanese Main Squadron maintained 10 knots and the Flying Squadron 12.

After the battle the Japanese squadron returned to its base on the Korean coast, coaled, and replenished its ammunition supply. The *Naniwa* and *Akitsuishima* were sent to reconnoitre the Chinese coast, and on September 19 discovered the KWANG-KAI aground in Talien Bay, near Port Arthur. They promptly destroyed her. But they failed to intercept the Chinese transports in the Yalu. These managed to get back to Port Arthur and Taku. Ting's battered Chinese ships during the month that followed the battle were repaired at Port Arthur and put into tolerable order, though the LAI-YUEN was in such a state as the result of the bad fires in her that little could be done with her. Ting with the TING-YUEN, CHEN-YUEN, PING-YUEN, TSI-YUEN and some smaller vessels was ordered to leave Port Arthur and proceed to Wei-hai-wei about October 20. No doubt the Chinese Government was aware that a Japanese attack on Port Arthur was imminent and that this place was no longer safe.

Ito convoyed fifty transports to the coast of the Liaotong peninsula, on which Port Arthur stands, on October 24, and a large Japanese force was landed at Pitzewo. In thus moving troops while there was still a powerful Chinese naval force in existence near at hand, the Japanese naval command took great risks. The safer course would have been to have watched the Chinese Fleet with the Japanese main naval force, and to have employed the smaller and older craft to cover the landing.

Ito, after the disembarkation had been effected, steamed to Wei-hai-wei and offered battle, but when the Chinese refused to come out, he returned to Port Arthur and supported the land operations. A successful assault was delivered on

¹See L. de Chasseloup-Laubat, *Considérations sur la Bataille du Yalou*, p. 129.

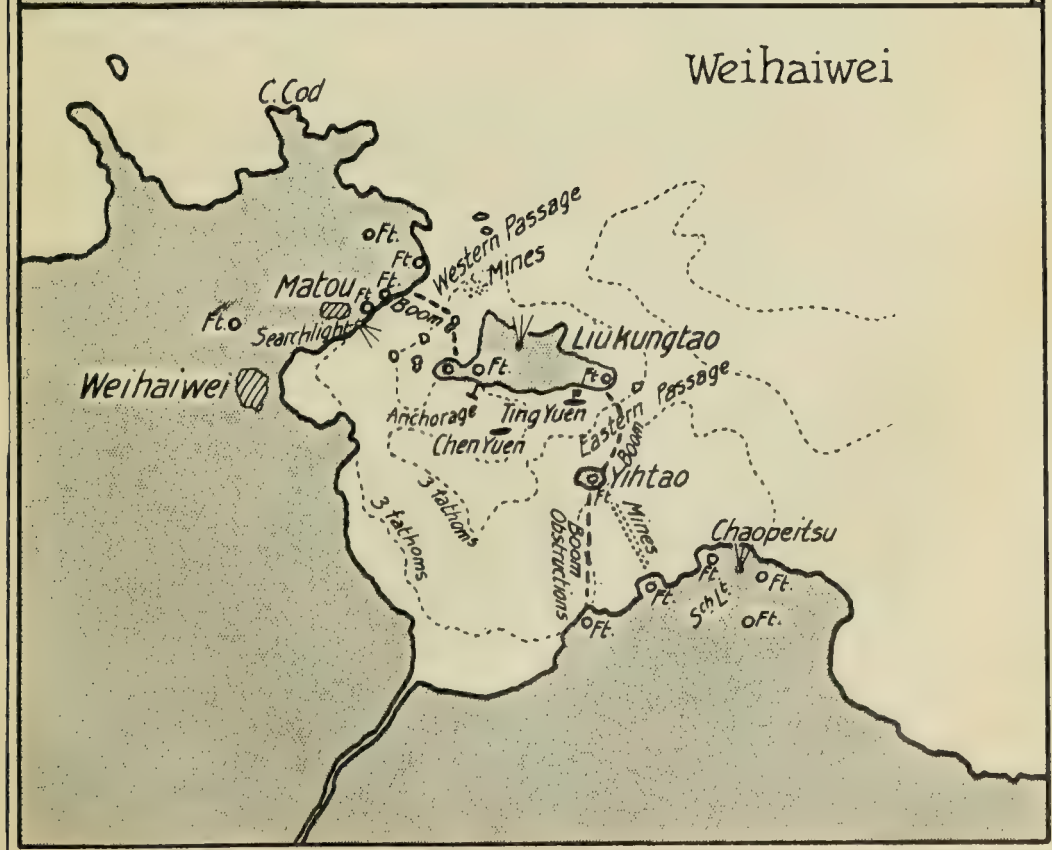
November 21, and in this the squadron co-operated, sending in ten torpedo boats led by the *Kotaka* (a large boat protected amidships by 1-inch hardened steel armour) under cover of a rain squall. The boats made their way into the harbour and from it turned their machine guns on the Chinese troops who were being attacked in front by the Japanese land force. Before noon Port Arthur with its docks, magazines and forts was in Japanese hands. The operations were brilliantly conducted with a precision which won the admiration of the foreign attachés.

The next step was to capture Wei-hai-wei, with the remnant of the Chinese Fleet. Of Ting's two large ships, the CHEN-YUEN had struck a reef when entering the harbour and was still in a leaky state, though she had been hurriedly repaired and could use her guns. The Chinese base was on Liukung island behind which a squadron could lie invisible from outside. There were strong forts on the mainland, commanding the two entrances and also on Liukung island and on Yih islet in the centre of the eastern entrance. Efforts were made by the Chinese to close the entrances with booms, constructed of three steel hawsers supported at intervals of 30 feet by wooden floats. The eastern boom was over 1,000 yards long; the western boom was smaller. Numerous mines were laid, but probably the mechanism was defective as they had no influence on the operations beyond preventing the larger Japanese ships from entering the bay.

On January 20, 1895, the 3rd Japanese Army began to disembark thirty miles east of the place. Land operations were vigorously pressed and by noon of January 30 all the eastern forts on the mainland were in the hands of the Japanese. They were open to the rear and could offer little effective resistance to attack from that quarter. The cruisers *Naniwa*, *Akitsushima* and *Katsuraki*¹ meantime bombarded the western land forts from the sea while the rest of the Japanese Fleet shelled the island forts. The Chinese vessels in the harbour, however, caused great trouble by firing at the Japanese troops; and when the Japanese land artillery turned on the TING-YUEN the guns of the eastern forts, the TING-YUEN replied with such effect that she silenced the fire and made a direct hit on a 9.4-inch gun ashore.

That night fifteen torpedo boats attached to the Japanese Fleet made an attempt to enter the harbour by the eastern entrance, as the land forts protecting it were now in Japanese

¹ One 6.7-inch and five 4.7-inch guns: 1,500 tons, launched in 1885.



hands. The torpedo craft reached a point close to the landward end of the boom, where there was an opening available for small craft, when the forts fired upon them, mistaking them for Chinese vessels, and they had to retire. For two days the weather was so bad with gales and snowstorms that nothing could be done, but in the night of February 2-3 a fresh torpedo attack was attempted. The Chinese detected the boats and opened a fire which led to the retreat of the torpedo craft. On the 3rd the torpedo craft made an attempt to clear a good opening through the boom, and succeeded in widening the gap between it and the shore, though they could not break it in the centre.

In the night of the 4-5th another torpedo attack was delivered. The 1st Division of five boats was ordered to divert the attention of the Chinese by demonstrating off the western entrance to the harbour. The 2nd and 3rd Divisions, ten boats strong, including two boats of about 120 tons and 23 knots, and eight boats of about eighty tons and 18 knots, all armed with 14-inch torpedoes, were to move in by the eastern entrance. At 3 a.m. when the moon went down, the ten boats ran in; two touched rocks before they could get near the Chinese ships and were unable to take a further part in the action.

At 4 a.m., *No. 5* was within range of the *TING-YUEN* but fired her torpedoes too soon and missed; *No. 22* also fired her torpedoes without making a hit. At this moment the *TING-YUEN* opened with her smaller guns and *No. 22* ran on the rocks and became a total loss. *No. 10* missed with her bow tube which jammed, owing to ice forming, with the torpedo partly emerging; the broadside tube was fired successfully, but the torpedo only just hit the stern of the *TING-YUEN* and though it exploded did her no great damage. *No. 10* as she steamed off touched *No. 6* with the projecting torpedo; the trigger was smashed but the detonator was not exploded. *No. 6* missed owing to her bow tube jamming from ice and received forty-six hits from rifle fire and one Hotchkiss shell (1-pounder) which did not explode. The torpedo boat was not damaged. *No. 9* was hit in her boilers and disabled after she had made what her crew took to be a hit on the *TING-YUEN*. In all eight torpedoes were fired by four boats, and five boats either ran ashore or had to give aid to consorts. Only two boats were lost—*Nos. 22* and *9*. The casualties were not heavy—15 killed or drowned and half a dozen wounded. But for the extremely severe cold several

of the men who fell into the water and perished would have been saved.

The Chinese ships seemed little the worse, and were still able to fire their guns. Accordingly another attack was ordered for the night of February 5. The 1st Division of four second-class boats led by the first-class boat *Kotaka*, made its way in by the eastern entrance while the remnant of the other two divisions watched and demonstrated off the western entrance. The boats got in among the Chinese ships and the *Kotaka* and Nos. 11 and 23 between them fired seven torpedoes. Hits were made on the TING-YUEN, LAI-YUEN, CHING-YUEN, and WEI-YUEN. The LAI-YUEN capsized, and lay for some time bottom upward while men inside could be heard hammering on the steel for days. The bottom was cut through, but not without considerable delay and they were found dead.

In the TING-YUEN the water-tight doors had been closed, but as the result of the torpedo hits they leaked badly and the bulkheads were no longer water-tight. She was beached to avert her total loss. The CHING-YUEN was disabled but could still fire her guns. The Japanese sustained no loss at all in this attack, though the enterprise was considered so desperate that Commander Mochihara, the leader of the division, had warned his men to be prepared for death with the words, "our boats and our bodies are the enemy's." All the boats returned unscathed. This was the last attack of the series in which the TING-YUEN and three other Chinese vessels had been sunk with a Japanese loss of two boats, 10 men killed, 5 drowned, and 31 wounded. The only really effective ship now left to the Chinese was the CHEN-YUEN. Thirteen Chinese torpedo boats in the harbour were ordered by Ting on February 7 to make their escape. They put to sea but were sighted and attacked by the Japanese. Only two of the thirteen got past the Japanese cordon, and the others were captured or driven ashore.

The Japanese troops on land could not get at the Chinese works on Liukung island, which were bombarded by the Japanese Fleet; while Ito landed parties of seamen near them. In the actions with the forts the Japanese ships had rather the worst of matters, but as some compensation for this, on February 9, the CHING-YUEN was sunk by a shell from a gun in one of the land forts in Japanese hands. The bombardment continued until February 12, when Ting surrendered, himself committing suicide. His body was sent by the

Japanese to Chefoo in great state. The condition of his ships was such that escape was impossible, but a more energetic commander at the beginning of the siege would have put to sea and attacked his enemy; if he had attempted such a bold stroke he might at least have inflicted some loss on the Japanese. On the fall of Wei-hai-wei they secured the CHEN-YUEN, PING-YUEN, TSI-YUEN, KWANG-PING and six gunboats, with a large amount of war material. Nothing could be done with the wreck of the TING-YUEN.

This war was important because in it for the first time quick-firing artillery and torpedo boats were systematically employed, because the risk of fire in old ships encumbered with much wood was proved in it, and also because the Yalu illustrated the tactical weakness of the end on attack and line abreast for battle. The Japanese strategy was defective in failing to concentrate from the outset on the destruction of the Chinese Fleet, and in insufficiently watching that fleet after the Yalu. But otherwise the Japanese Army and Navy did their work admirably, and nothing could have been more skilful than the operations by which the land forts at Port Arthur and Wei-hai-wei were secured. The efficiency of both the Japanese seaman and soldier was high, and one result of the war was a great enhancement of Japan's reputation in the Far East.

In the war which began on April 17, 1897, between Greece and Turkey, the Greek Navy was able to control the sea. It was insignificant enough on paper, consisting of three small coast defence armoured ships (each mounting three 10.6-inch guns), one old armoured gunboat, twelve light draught gunboats and sixteen torpedo boats of fifty tons and over, besides a number of small craft. But the Greeks are good seamen and quite at home on the water. The much larger and more powerful Turkish Navy was composed of rusting ships which for years had been left unmanned and almost uncared for; there were neither trained officers nor men, so that its value was small. Yet it included four medium-size reconstructed armourclads (each of which was superior in armament to any Greek vessel), twelve old and small armoured ships of obsolete pattern and sixteen torpedo boats, two of which were of good size and formidable vessels.

Had the Turkish Fleet been capable of giving battle to the Greeks it might have ended the war at a stroke, by moving against Attica and the very exposed city of Athens. But it

made no attempt to carry out any such plan and remained in port. On their part the Greeks used their navy most ineffectually. They could have threatened the Turkish communications at Salonica (which was then a Turkish city and railway junction) and they would have been certain of aid from the Greek section of the population in Macedonia. But they attempted nothing beyond shelling a few points on the coast of Thessaly and Epirus, which were then in Turkish occupation. An attack on Preveza, at the entrance to the Gulf of Epirus, was delivered in a half-hearted fashion, but failed completely. Any idea of assailing Turkey in Asia Minor had to be abandoned when the Turkish Army invaded Greece and so completely defeated the Greek forces that King George had to appeal to the Czar for relief. Under pressure from Russia, Turkey granted an armistice on May 20, 1897, when operations by land and sea ended.

In the South African War of 1899-1902 the British Navy was not directly engaged, except in so far as it supplied naval brigades and long range guns for service on land with the British forces. The work of these brigades and of the naval artillery detachments belongs to the history of land war, not of naval operations. Powerful British squadrons covered the transport of troops to South Africa, and the British forces in waters near the scene of the war were considerably strengthened. But the only naval incident of any importance which occurred was the arrest of the German steamers *Bundesrath*, *Herzog* and *General* in 1899-1900 en route to Delagoa Bay, a Portuguese port, from Germany, but, as was alleged by the British authorities, carrying contraband for the Boer armies.

The German Government demanded the immediate release of these ships on the ground that no question of contraband could arise in trade between one neutral port to another. The British Government refused to admit that the destination of the vessel was conclusive evidence of the destination of the goods on board. But as a search of the ships at Durban showed nothing suspicious, they were released and a large sum was paid in damages by the British Government. The episode was of grave importance as it led the German Emperor William II to threaten the British Government with an ultimatum, if it did not agree to the German requirements.¹

¹ *Grosse Politik der Europäischen Kabinette*, xv, p. 471. The ultimatum is disputed, but that it was intended by William II is known from British and foreign sources. On the question of law, see Wheaton, pp. 562, 734, 749; *Parliamentary Papers* (1900), *Africa*, No. 1.

In June, 1900, the outbreak of the Boxer movement in China and the news that the Legations at Peking were in extreme danger led the European Powers and Japan to intervene in Northern China. A large number of foreign warships assembled off Taku at the end of May, and detachments of seamen and marines were sent forward to Tientsin for the purpose of reopening communication with the Legations. They were under the senior naval officer on the station, Vice-Admiral Sir Edward Seymour, who had with him a total strength of 2,072 officers and men—British, German, Russian, French, United States, Italian, Japanese and Austrian. They began their advance on June 11, but were almost immediately brought to a standstill. As Seymour was in considerable danger, and the attitude of the Chinese troops in the Taku Forts was menacing, a conference of foreign naval officers was held on June 16 off Taku, at which the decision was reached to bombard and storm the Taku Forts, if they were not evacuated by 2 a.m. of June 17. An ultimatum was sent in to the Chinese commander by a tug, and preparations were made in the various squadrons.

The Taku Forts, four in number, were situated on both sides of the Peiho River and could not be reached by any but the smaller foreign ships, owing to the bar outside the river and the shoal water. They mounted a large number of guns of all types and ages,¹ but among them were numerous modern breech-loading weapons of 4.7-inch, 5-inch and 6-inch calibre and long Krupp 9.4-inch guns, which were capable of great mischief in the hands of well-trained gunners. They had been constructed by a German syndicate, with walls and parapets of clay mingled with chopped straw, which proved unusually resistant to shell fire. A landing to seaward was impracticable because of the great expanse of treacherous mud which borders the coast. At the small naval dockyard were four new German-built destroyers of excellent type.

In the afternoon and evening of the 16th the Chinese allowed the Allied small craft to take up positions in the Peiho River, ready for the attack and close to the Forts. The old United States gunboat *Monocacy* with muzzle-loading smooth-bore guns was stationed highest up, near Tongku, as she was for all practical purposes useless for action against the forts. The old Japanese gunboat *Atago*, mounting ancient weapons, was also of little value. The vessels actually

¹ Dix, p. 27. (See Plan XXII—p. 272)

engaged were from the mouth of the river upwards in line, the British sloop *Algerine* (six 4-inch quick-firers, and seven small guns); the German gunboat *Iltis* (four 4-inch quick-firers, and six small); the French gunboat *Lion* (two 5.5-inch and two 4-inch); the Russian sloop *Koriets* (two old 8-inch and one 6-inch gun, besides several smaller weapons); the Russian gunboat *Giliak* (one 4.7-inch and six 12-pounder quick-firers); and the Russian gunboat *Bobr* (one 9-inch, one 6-inch and several small). Two good British destroyers, the *Fame* and *Whiting* (each armed with one 12-pounder and five 6-pounders) were to look after the Chinese destroyers. All these small vessels were to land parties so soon as a favourable moment came, and to co-operate with a force of seamen which was ready east of the Peiho to storm the forts, beginning with the North-West Fort.

The Chinese did not wait till the appointed time, but at 12.50 a.m. of June 17, 1900, opened fire with every gun that would bear on the Allies, who at once replied. The *Giliak* made the serious mistake of turning on her searchlight, with the result that she became the special target of the Chinese guns and was almost immediately struck by three shells which exploded one of her magazines and so damaged her on the water-line that she took the ground on the soft mud. Meantime the *Fame* and *Whiting* attacked and daringly cut out the Chinese destroyers, without casualties and in face of a trifling resistance. The *Whiting* was damaged, receiving a 5-inch shell in one of her boilers, which fortunately for her did not explode. By 3 a.m. the ships had brought the fire of the Chinese forts sufficiently under control to permit of the assault.

The advance began of a mixed naval brigade, mustering 904 officers and men under the command of Commander C. G. F. M. Cradock (who fourteen years later perished as a rear-admiral at Coronel). But as the stormers neared the North-West Fort, they found that work was not yet ripe for assault, and waited for day to break and further damage to be done by the bombardment. A Chinese magazine went up in the South Fort at 4 a.m. and at 4.30 the North-West Fort ceased fire. It was rushed in a most gallant bayonet attack by the British and Japanese. A magazine explosion in the North Fort followed, and that work was also carried with little difficulty. The Allied forces then crossed the river and secured the works on the south shore without a shot being fired at them.

The resistance of the Chinese was poor and their gunnery indifferent. Nevertheless, without a land attack the ships would probably have been repulsed. The Allied casualties were 138¹; the Chinese loss was over 650. Of the ships, the *Giliak* suffered most, losing 9 killed and 49 wounded from the hits she had received. The *Iltis*, which was admirably handled, had 7 killed and 12 wounded; the *Lion* lost 3 wounded; the *Korietz* 7 killed and 21 wounded; and the *Algerine* 1 killed and 15 wounded. The *Bobr* escaped loss of any kind. The *Iltis* sustained twenty-one hits. The four captured Chinese destroyers were apportioned, one apiece to the British, Japanese, French and Germans. On the guns and the gun shields in the forts were many hits; the holes in one shield showed that no fewer than seven projectiles had struck it. The extreme shortness of the range rendered it possible to put the Chinese artillery temporarily out of action by killing the gun crews, though few of the weapons ashore were irreparably damaged. The total number of rounds fired by the Allies was 10,143, and at the close of the bombardment in all the Allies' ships the ammunition was almost exhausted.

¹ As the figures given in the various authorities do not agree I have taken those of the German report (*Kaiserliche Marine*, pp. 77-8).

CHAPTER VII

American-Spanish War—The “Maine” at Havana—she is Blown up—Mistaken Verdict on her Destruction—State of the Spanish Navy—The United States Fleet—Spanish Government’s bad Orders—Cervera in Command—He Steams to the West Indies—Arrives at Santiago—American Movements—Bombardment of San Juan—Sampson Blockades Santiago—Spanish Squadron Ordered to go Out.

WAR between the United States and Spain began in April, 1898, as the result of Spain’s failure to suppress a republican insurrection in Cuba which had been in progress since 1895. The republicans, adopting guerrilla tactics, had kept the field for three years, though 225,000 Spanish troops had in all been sent to the island. At the end of 1897 friction with the United States increased and American citizens in Havana were thought to be in danger. To give them protection the second class battleship *Maine* (Captain C. D. Sigsbee) was despatched to Havana, where she arrived on January 25, 1898. She was conducted by a Spanish pilot into the harbour and placed near other warships. She was a ship of 6,682 tons, launched in 1890, and was armed with four 10-inch guns in two turrets which were placed *en échelon*, one forward and one astern. As relations with the Spanish authorities were strained, special precautions were taken on board her and a close watch was maintained to prevent any boat or launch from approaching and using explosives against her.

At 9.40 in the evening of February 15, a sound like the discharge of a heavy gun was heard and observers in other ships saw a rush of fire and smoke from the *Maine*, followed by the prolonged and violent roar of a great explosion. The whole forepart of the ship was shattered and almost all the men in it perished. The *Maine* was lying in not more than thirty-six feet of water, and her after part remained afloat, while much wreckage showed above the surface amidships. Forward, the tangled steelwork of the hull sank into the mud.

Of the crew 254 were killed on the spot by the explosion, and 24 officers with 76 men escaped, 59 of them, however, being wounded, and of these 12 afterwards died. The officers nearly all survived because they were berthed aft, in a part of the ship which was not so seriously affected by the explosion.

To those on board who were not killed it seemed that there was a big under-water explosion, felt rather than heard, after which the whole starboard side of the ship's deck flew upwards like the edge of the crater of a volcano. The hull appeared to break in the middle and after that to cant over to port. Two men in the superstructure near the centre of the ship saw a red flame and then the deck trembled, opened, and in a blaze of fire they fell or rose; and suddenly found themselves below, with the water pouring down upon them, under a heavy weight. A second explosion appeared to lift the weight, and they finally escaped with burns. From the berth deck only two men were saved. One of them described his experiences thus: "I heard a terrible crash—an explosion I suppose it was. Something fell and then after that I got thrown somewhere in a hot place . . . I got burned on my legs and arms, and I got my mouth full of ashes and one thing and another. Then the next thing I was in the water."

From the lower part of the ship below the armour deck only one man survived—a fireman. He was lying down in the steering engine room, two decks below the berth deck and far astern. He could see through the open door into the engine room, when all at once "a blue flash shot by the engine room lamp"; there was a continuous trembling of the ship and a terrible report. It seemed to him as if "the whole earth had opened up." A man who was with him perished in the explosion. This evidence is of importance as showing that the rush of flame swept far astern in the lower part of the hull, below the armour deck.

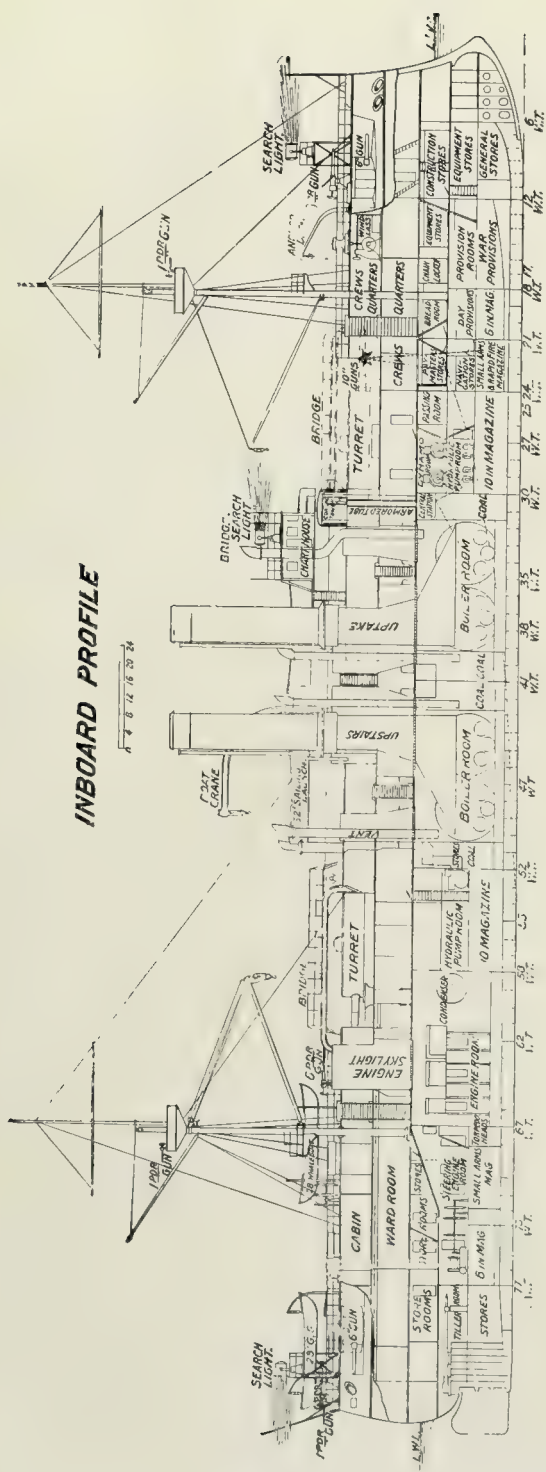
Many men appear to have been cut off below without being killed by that swift rush of fire. Captain Sigsbee spoke of "the awful scenes of consternation, despair and suffering down in the forward compartments of the sinking ship; of men wounded or drowning in the swirl of water, or confined in close compartments gradually filled with water." Several of the survivors in their evidence spoke of cries from the marines' compartment. Immediately after the explosion, with all possible energy, the survivors set to work to rescue the injured and drowning and to cope with the fierce fires which had broken out in the heap of debris that still showed

above the water. The task was one of exceptional danger. It was quite certain that the after 10-inch magazine had not exploded, and there was risk every minute if the flames reached the powder and projectiles stored in it, or thrown up from it among the wreckage by the shock. The highest standard of discipline was maintained, and when orders were given to abandon ship the wounded were first removed and Captain Sigsbee was the last to quit her. The debris above water burned all the night with frequent small explosions.

As soon as the wreck of the *Maine* could safely be approached, the hull was thoroughly examined by divers. On February 19, Captain W. T. Sampson, Captain F. E. Chadwick and Lieut.-Commander W. O. Potter were ordered to sit on a board of inquiry at Havana, which met on February 21. It was felt that on their verdict would depend the issue of peace or war, for the tendency in the United States was naturally to believe the *Maine* had been destroyed by Spanish treachery. All three officers of the court were men of unfaltering integrity, who would not be swayed by national bias but could be trusted to do what they believed right. They reported that a mine had been exploded under the *Maine*, about frame eighteen, and that this had involved the partial explosion of two or more of her forward magazines. But how the mine had got there the court did not determine.

The verdict, though an entirely honest one, in the light of subsequent events was probably wrong. No scrap of evidence from Cubans or Spaniards in the period of nearly thirty years which has passed since the explosion has been forthcoming to show that a mine was there. Moreover what was then thought to be out of the question—that a ship's explosives, when properly made and carefully watched, should detonate spontaneously—has since been proved to be only too possible by a long series of disasters in which most navies have shared. The explosions in the Aquidaban, Iéna, Liberté, Bulwark, Natal, Vanguard, Benedetto Brin, Karlsruhe, Mikasa, Matsushima, Kawachi, Tsukuba, by which those ships were either badly damaged or destroyed, are among the more famous instances, while many other ships in various navies had narrow escapes as the result of spontaneous fires in magazines which were not publicly reported.

British experts at the time of the *Maine* disaster were of opinion that the explosion was an internal one and stated their reasons for that conclusion, but the United States public did



THE UNITED STATES BATTLESHIP "MAINE" IN SECTION

The black star forward, just abaft the foremast shows the level to which the ship's keel was blown up, in the explosion. The forward magazines appear to have exploded. The flash passed as far aft as the steering engine room, which is shown in the stern.

not accept their view.¹ The Spanish official investigation held at Havana reported that an accidental explosion had occurred in the *Maine's* forward magazines, and this appears to have been the truth. No trace of a mine could afterwards be found by divers in the soft mud, under or near the wreck, nor was any upheaval of water marked by observers at the time in other vessels. No dead fish were found in the harbour next morning, yet if a mine had been exploded dead fish were to be expected. The divers reported that there was an inverted V in the keel, which had been driven sharply upwards, and this was then thought conclusive in the United States, but experiments have since shown that an inverted V can be produced when there is an internal explosion. No high explosive nor smokeless powder, except for a small quantity of 6-pounder ammunition, was in the magazines involved, but that they had actually exploded was proved by the divers' investigation.

Long subsequent to the war, in 1911, cofferdams were built round the wreck, and after being thus cleared it was examined by a board of expert United States officers under Rear-Admiral C. E. Vreeland, who concluded that a mine had been exploded between frames twenty-eight and thirty-one—much further aft than the earlier court of inquiry had reported. They ascertained that 100 square feet of the ship's bottom had been displaced upwards, inwards and to starboard, and they thought this proved that a mine charged with low explosive had been used. Their finding contradicted the verdict of the earlier court because it tacitly assumed that the inverted V in the keel, near frame eighteen, had not been caused by a mine exploded at that point, and was of no special importance. It was pointed out by British experts in 1912 that the section of 100 square feet would not have been displaced if a mine had really been employed, but that it would have been shattered. Supposing, however, a mine was the cause of the explosion, it must have been laid by the Republicans with the special object of securing the intervention of the United States. The Spanish authorities would have been the last people to invite the attack of so powerful an antagonist. At the moment of the explosion the Spanish armoured cruiser *VIZCAYA* was on her way to New York, which was yet another reason against a deliberate crime on Spain's part.

The earlier court of inquiry did not publish its verdict till March 28, 1898, but the general tenor of its opinion was

¹ See Lieut.-Colonel J. T. Bucknill, in *Engineering*, June 21, 1912.

known to the United States Government by March 8, when Congress voted £10,000,000 for defensive measures. On April 20 an American ultimatum was telegraphed to Madrid and the same day the Spanish Minister at Washington asked for his passports. On April 21 diplomatic relations were broken off and the war may be said to have begun.

The Spanish Government had made no real preparations to meet a naval attack, though it was clear that Cuba could only be retained if the Spanish Navy controlled communications by sea. For seventy years the Spaniards had suspected the United States of designs on Cuba, and if they meant to hold that island, they ought to have provided an effective fleet. But though from 1895 onwards the risk of a conflict with the United States grew, as the civil war in Cuba continued, quite insufficient efforts were made to hasten the completion of ships in hand and to buy vessels abroad. The small battleship PELAYO was indeed sent to France for a refit in 1897 but was not ready for sea in April, 1898. Of seven armoured cruisers four were then incomplete though they had been long in hand.

Apart from weak old ships, Spain had only available for immediate action in early 1898 three armoured cruisers of Spanish build, INFANTA MARIA TERESA, ALMIRANTE OQUENDO, and VIZCAYA, vessels of 6,890 tons launched in 1890-91, with narrow water-line belts of compound armour and batteries of two 11-inch and ten 5.5-inch quick-firing guns. Their nominal trial speed was $20\frac{1}{4}$ knots. A more powerful new armoured cruiser, the CRISTOBAL COLON, was bought in Italy in 1897, but was not ready for sea until March, 1898. She was protected by 6-inch nickel steel on the water-line and amidships to the height of her upper deck. She was to have mounted two 10-inch and ten 6-inch quick-firing guns behind armour, in addition to six 4.7-inch quick-firing guns on the upper deck, but the 10-inch weapons were not ready and she had to go to sea eventually without them. Her trial speed was over 20 knots. Three destroyers were ready, new Clyde-built boats of 400 tons. On paper in 1897 the Spanish Navy mustered 960 officers and cadets, 14,000 warrant officers and men, and 8,500 marines, of whom about 2,000 were in the Far East and another 2,000 in small craft on the Cuban coast, but the real strength was distinctly below the establishment. Except for Havana, which had no dock for vessels larger than small cruisers, there was no fairly

equipped naval base in the West Indies, though Spain then owned the island of Puerto Rico as well as Cuba.

The United States Navy had ready for sea in March, 1898, five good battleships. Three of these were sisters, the *Indiana*, *Massachusetts* and *Oregon*, all launched in 1893, and each carried four 13-inch, eight 8-inch and four 6-inch guns protected by armour, which covered the whole centre of the ships from the water-line upwards. These vessels steamed 17 knots on trial and displaced 10,231 tons. The battleship *Iowa*, launched in 1896, was similar, but carried four 12-inch, instead of four 13-inch guns, and six 4-inch quick-firers in place of four 6-inch guns, with the same number of 8-inch weapons. Her armour protection was much the same as theirs. The second class battleship *Texas* of 6,300 tons, launched in 1892, carried two 12-inch guns in two turrets disposed *en échelon*, with six 6-inch weapons. She was protected by a narrow belt of steel armour on the water-line and strong plating on her turrets, and she steamed 17 knots. The United States also possessed six coast-defence monitors, mounting heavy guns behind thick armour, but of such unsatisfactory nautical quality that they were of little service in the war, though they were employed in blockade duty. Two large armoured cruisers completed the United States force of armoured ships. The *New York*, of 8,150 tons and 21 knots, mounted six 8-inch guns and twelve 4-inch quick-firing weapons with 7-inch armour on her heavy gun turrets and a steel belt 3.8 inches thick. The *Brooklyn*, of 9,153 tons and 21 knots, carried eight 8-inch and twelve 5-inch quick-firing guns with armour protection, 5 inches to 8 inches thick for her guns and a 3-inch water-line belt.

Of protected cruisers there were thirteen in the United States Fleet, one of them undergoing reconstruction and unavailable. The best of them was the *Olympia*, launched 1892, of 5,800 tons and 21 knots, mounting four 8-inch guns in two armoured turrets and ten 5-inch quick-firing guns. The *Minneapolis* and *Columbia*, launched 1892-3, were ships of 8,050 tons and 22 or 23 knots, with batteries in each ship of one 8-inch, two 6-inch, and eight 4-inch quick-firing guns. Designed as commerce destroyers they were well adapted for use as scouts. Five smaller cruisers and six good torpedo boats were ready, besides a number of older and less effective vessels. The United States Navy before the war mustered 1,021 officers and cadets and 15,420 seamen and marines. During the war its strength was raised to 1,311 officers and

cadets and 24,123 seamen and marines. As for bases, the United States had depôts and a coaling station at Key West but no dock which would safely accommodate a battleship nearer to Cuba than Port Royal.

Each side took over a number of fast steamers for naval duties. The United States in the *Harvard*, *Yale*, *St. Louis* and *St. Paul* thus obtained four good vessels with sea speeds of 19 to 20 knots. None of the Spanish steamers figured at all prominently in the war and they need not be further mentioned. In efficiency there was an extraordinary difference between the two navies. The United States ships had their engines in good order, were well manned, had excellent officers and, allowing for the gunnery methods of the time, shot well. The strength of men was swiftly expanded by enlistments from the Naval Militia, 4,400 strong, which supplied a reserve of high mental quality if of little professional knowledge. The Spanish Navy, short of money, was not an effective force.

The conduct of modern naval war depends largely on fuel supply, for a fleet without coal or oil is entirely helpless. If the Spanish Fleet were to fight for Cuba, it would have to give battle on the further side of the Atlantic, in the Caribbean. For operations there, supplies of provisions, ammunition and fuel would have to be provided either at some Spanish port in Caribbean waters or at some secret and secluded point on the Central or South American coast. But in so casual a manner did the Spanish Government drift into this war that no measures to accumulate such supplies in the West Indies were taken, nor was even the general direction of effort considered beforehand and decided. On one head the teaching of all war is decisive, that force should be concentrated to the utmost degree possible at the vital centre and that what came in the Great War to be known as "side-shows," or secondary enterprises should be avoided. The leader who will have to handle that force should be selected beforehand and should be a man of strong and sanguine character who believes in success.

The Spanish Government made a great mistake when it chose for the command of the squadron which was intended for Cuba, Rear-Admiral Pascual Cervera y Topete. Aged fifty-nine in 1898, he was an officer of signal courage and honesty, and was greatly beloved. But he had the defect of despairing from the outset in any possibility of victory, and he was firmly convinced that he went to a fresh Trafalgar.

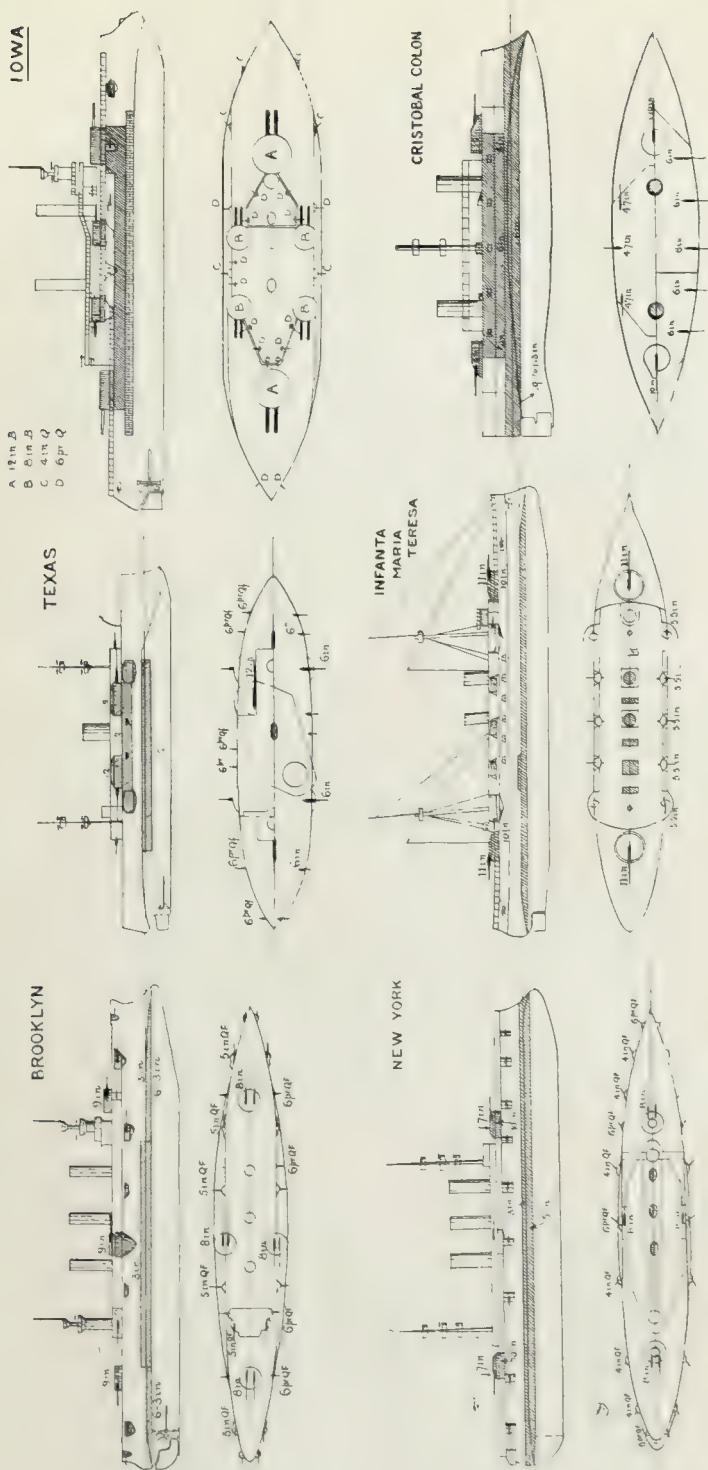


PLATE 9

Types of ships in the United States and Spanish Navies. The thickness of armour is shown.

No one had more earnestly and continuously warned the Spanish Government of its navy's utter weakness. On February 25, he told his government with correct insight that "to carry out any serious operations in a naval war, the first necessity is to secure control of the sea." He could not himself be altogether acquitted of responsibility for disaster when he agreed to execute plans which he regarded as suicidal. Napoleon's ruling on the responsibility of an admiral or general represents vast experience and lays down correctly the principles for all time.¹

"A commander-in-chief is not covered by the order of a minister or Prince who is distant from the field of action and badly informed or ignorant of the latest developments.

"Every commander-in-chief who, in consequence of superior orders, undertakes to carry out a plan which he regards as bad or disastrous, is criminal. He ought to represent his views, to insist on a change being made, or in the last resort to resign sooner than become the instrument of ruin to his people.

"A commander-in-chief is the head of the military hierarchy. The minister or the Prince gives him instructions to which he ought to conform in spirit and conscience. But these instructions are never military orders and do not demand passive obedience.

"As for a military order, it only requires passive obedience when it is given by a superior who is present at the moment when he gives it, who knows the exact state of affairs, and who can listen to objections and give explanations to the officer who is to carry out the order."

Cervera's view was put with unusual force in a private letter which he wrote to the Minister of Marine, Admiral Bermejo, on March 14, 1898:

"I am the enemy of the system which has led to all this disorder and disorganisation. Instinctively I call to mind Admiral Byng, hanged at Plymouth from like cause; Persano after the battle of Lissa; Mathews acquitted² after the affair of Cape Sicié; Bazaine condemned to death after Metz; and Baratieri who is now being tried by court martial and expects a sentence of death or life imprisonment.

¹ *Correspondance*, xxix, pp. 328-30. With modifications these instructions are embodied in the British *Field Service Regulations* (1909), i, pp. 31-32.

² He obviously meant "condemned" but by a slip wrote *exonerado* (*Coleccion*, p. 16).

For when peoples are disorganised, their governments, being the product of disorganisation, are disorganised too. When, as the natural consequence, disaster follows, they do not look for the true causes but raise the cry of 'treason' and search for some unhappy victim who expiates the faults which were not his. For these reasons I hesitated exceedingly before accepting my command, but having accepted it I will face all the consequences which it involves, and as I have said I will do my duty. Yet shall I bear in mind the words of our Lord Jesus Christ, and say not so much for myself as for helpless Spain, 'Father, if it be possible, let this cup pass from me'."

This cry of passion for his country and of sorrow for her future does honour to Cervera as a man, but is one more proof that he was not the officer to despatch on so desperate an enterprise. His advice to the Spanish naval authorities was sound—seeing that the Spanish force was so small, not to divide it; his warning that with scanty ammunition and coal little was to be expected was more than justified. None the less the Spanish Government decided to commit every possible fault. It determined to divide the Spanish Navy into two detachments, of which the stronger under Cervera was ordered to proceed to the Caribbean, to destroy Key West with the aid of the ships at Havana, and to blockade the United States coast. The programme was fantastic in its impracticability, and Cervera urged that the only possible method of taking the offensive was to carry out raids with the fast Spanish vessels. Such a strategic plan, however, required elaborate arrangements for coaling the raiders and could have achieved no lasting success.

One move might have been attempted by the Spanish squadron. On March 19 the battleship *Oregon* left San Francisco with orders to proceed to the United States Atlantic coast and at Callao she was to be joined by the gunboat *Marietta*. As the Panama Canal had not then been made, she would have to steam a distance of 14,000 miles or more, during which the Spanish Navy might have attempted to engage her with a squadron operating from some secret base on the Brazilian coast, such as the Karlsruhe used in the Great War. No plan of this kind was ever considered by the Spaniards, probably because it was thought that one powerful battleship would be much more than a match for four armoured cruisers which were short of ammunition,¹ because

¹ Cervera, *Documents*, p. 77.

a single vessel on such an immense ocean would be difficult to find, and because the establishment of a secret base with coal supplies involved careful preparation beforehand. The Spanish Naval Minister, indeed, admitted on April 4 that, preoccupied with the political crisis, he had found it impossible to come to any decision. A plan of campaign must be worked up beforehand; it cannot be elaborated at the last moment.

On April 8, Cervera with the armoured cruisers MARIA TERESA and COLON, the destroyers FUROR, PLUTON and TERROR, and the old torpedo boats ARIETE, AZOR and RAYO, reached St. Vincent in the Portuguese Cape Verde Islands, where on April 19 they were joined by the VIZCAYA and OQUENDO, coming from the West Indies. The VIZCAYA was so foul that her best speed did not exceed 14 knots. The squadron was short of funds and had no auxiliaries except the steamer CIUDAD DE CADIZ. From the steamer SAN FRANCISCO which the Spanish Government had chartered and sent to him with 2,000 tons of coal, Cervera filled up his bunkers as best he could. On April 21, to his stupefaction he received from Madrid orders, to "go out with all your force to protect Porto Rico," yet he had not even been informed that war had begun.¹

Two days later a council of admirals at Madrid decided that Cervera's squadron should proceed to the West Indies, one of the arguments employed being that it should defy risks, "as Tegetthoff did when he was ordered to attack a superior squadron at Lissa,"² though Tegetthoff was not ordered to attack, but was given permission to act according to his judgment. Thus, under the pretext of being faithful to the offensive, a morally and materially inferior force was to be flung upon the powerful United States Fleet. "If dwarfs, sheep, pugs or goldfish were to dart upon giants, wolves or pike, we might perhaps admire their heroism but we should certainly have only too strong reason to pity them," says a French writer.³ On the Napoleonic principle Cervera should have disobeyed this mad order, though he would beyond question have been taunted by the foolish with cowardice had he so acted.

At midnight, April 28-29, Cervera put to sea with the four armoured cruisers MARIA TERESA (flag) OQUENDO, VIZCAYA, COLON, and the three destroyers, FUROR, TERROR and PLUTON.

¹ Cervera, p. 54.

² *id.*, 61.

³ V. Dupuis, *Direction de Guerre*, p. 192.

The three torpedo boats were sent back to Spain in a lamentable state. At the last moment the Spanish Government made some hasty attempts to despatch coal to the Caribbean. The ALICANTE, a liner transformed into a hospital ship, was ordered to Martinique there to supervise coaling arrangements. The British colliers Roath, Restormel, Twickenham, were chartered for work in the West Indies. Cervera was only told that 5,000 tons of coal for him were on the way to the small Dutch island of Curaçoa. None of the colliers reached him and the first two were captured by the United States Fleet.

The distance from the Cape Verdes to the nearest point in the West Indies was 2,100 miles, and at 10 knots the Spanish squadron might have been expected to cover it in nine days. When Cervera did not appear at the expected date, about May 8 or 9, there was some bewilderment. He was delayed by the necessity of towing his destroyers and did not reach Martinique till the early morning of May 12. He sent his destroyer FUROR in advance to Fort de France, to telegraph news of his arrival.¹ That vessel arrived on May 11 and learnt that no coal was to be had; that a powerful United States squadron was off San Juan, Puerto Rico; and that the fast American merchant cruisers *Harvard* and *St. Louis* were near at hand; that the Spanish squadron at Manila in the Philippines had been annihilated; and that the United States Fleet was blockading the Cuban coast, but that the port of Santiago in that island was unguarded. The destroyer TERROR, with serious boiler troubles on May 12, was sent into the port. She parted finally from Cervera and was ordered after making repairs to proceed to Puerto Rico, which island she reached some days later unmolested. A telegram from the Spanish Government at Madrid, "If you do not believe that your squadron can operate there [in the West Indies] successfully, you may return to Spain," was never received by Cervera, who was left completely in the dark. His most urgent requirement was coal, and the only place where he was at all likely to get it was Curaçoa, whither his government had assured him, on April 26, that it was being forwarded.

According to his information the only place which he could reach without risk of battle was Santiago, but he had barely

¹ Cervera had to communicate with the shore, and thus to disclose his whereabouts, as he did not even then know definitely that war had been declared and he was in extreme want of information and coal. Wireless was then in its infancy and the Spanish Government could not communicate with him while he was at sea. See Concas, p. 45.

enough coal to take him thither—a distance of 950 miles, and he was further informed that there was no coal there, which in actual fact was a mistake. No secret base, such as the Karlsruhe used in 1914, had been arranged for him on the Venezuelan coast.¹ He therefore first proceeded to Curaçoa 480 miles away, hoping at that Dutch island to find his colliers. He arrived early on May 14, but learnt that the colliers had not arrived, and that not more than two of his vessels would be admitted to the port and then only for forty-eight hours. The TERESA and VIZCAYA went in and with great difficulty obtained 400² tons of poor coal and considerable supplies of fresh provisions.

Late on May 15 he left and steamed towards Santiago, which Cuban port he reached and entered early on May 19, short of coal, supplies and ammunition, without having been sighted by the United States forces. Could he have coaled quickly, he might have been able to reach Havana, for the moment was favourable, as will be seen when the American movements are examined. But though there was 2,300 tons of Welsh coal in the naval depôt, no facilities existed for shipping this fuel speedily; baskets and sacks were not to be had; and during a stay of six weeks the squadron never succeeded in filling its bunkers. For ten days the presence of Cervera was not definitely ascertained by the United States Navy, but secret information that he was at Santiago reached Washington on May 19, the date of his arrival.

The strategy of the United States Navy was controlled by the Naval War Board (answering roughly to the War Group in the British Admiralty during the earlier part of the Great War). Its members were the Assistant-Secretary of the Navy, Roosevelt, well-known as a naval historian and subsequently President of the United States; Rear-Admiral M. Sicard; and Captains A. S. Barker and Crowninshield. On May 9, 1898, the Board was joined by the naval historian Captain A. T. Mahan; two days earlier Roosevelt left it to join the United States military forces; and on May 20, Captain Barker left it. It remained in session throughout the war and prepared for the Secretary of the Navy, J. D. Long, the orders to be issued. He was not bound by the Board's advice, but in actual fact appears always to have followed it.

¹ The collier Twickenham had been ordered before war began to proceed to the Venezuelan coast, but Cervera was not told of this, and, in any case, she delayed at Martinique, and was eventually captured by a United States cruiser.

² Captain Concas states that 400 tons was shipped: Cervera speaks of 600 tons: the Spanish Minister at Caraccas states only 300 tons was obtained.

On neither side was secrecy observed as it was subsequently by all the Powers engaged in the Great War. The American and Spanish Press published information of movements and discussed strategy freely.

From the outset the United States had the valuable aid of the insurgents in Cuba who supplied intelligence and were usually ready to co-operate with the United States Fleet. Owing to the insurrection, communication between the Cuban ports was mainly by sea; difficulty was experienced by the Spanish forces in keeping the railways open; and the population of the towns depended largely on seaborne supplies. A blockade of the Cuban coast was therefore indicated as the most effective means of destroying Spanish rule in Cuba and forcing a satisfactory peace. To avoid international complications when the blockade was proclaimed it applied only to the ports of Havana, Mariel, Matanzas and Cardenas, but was soon extended. So hopeless was the strategic problem from the Spanish standpoint that the Spanish Government would have acted wisely in withdrawing altogether from Cuba before war began. The Spanish Army in the field was 100,000 strong in early 1898, but was in want of almost everything, including food, and suffered terribly from fever.

The United States naval forces were handled with great caution in the early weeks of the war. In command of the North Atlantic squadron was Rear-Admiral W. T. Sampson, fifty-eight years of age, who was specially selected for the post, though six rear-admirals, ten commodores, and three captains were senior to him. He was an officer of enterprise, judgment and firmness of character and in every way an admirable choice. To command the Flying Squadron, Commodore W. S. Schley was appointed, and though much senior to Sampson was placed under him in the naval hierarchy. Sampson's own force consisted of the armoured cruiser *New York* (flag); battleships *Indiana* and *Iowa*; monitors *Puritan*, *Amphitrite*, *Terror*, *Miantonomoh*; cruisers *Detroit*, *Cincinnati*, *Marblehead*, *Montgomery* and *Dolphin*; six gunboats; one armed yacht; and six torpedo boats. All United States war vessels were painted a light grey-green. Sampson's task was to blockade Cuba and watch the West Indies, a matter of no small difficulty in view of the great distances. Schley's force consisted of the armoured cruiser *Brooklyn*; battleships *Massachusetts* and *Texas*; and cruisers *Minneapolis*, *Columbia* and *New Orleans*. Its mission was to protect the United States coast—a purely defensive one—and

it was stationed at Hampton Roads, remote from the scene of operations in the Caribbean. This division of force might have given the Spanish Navy opportunities of doing much mischief, had it been ready and better equipped.

In the United States the power of the Spanish cruisers was absurdly overestimated, and even so wise an authority as Mahan thought, "our nominal force for the order of battle prior to the arrival of the *Oregon* was nominally only equal to that of the enemy." Cervera about the same time was demonstrating by logistics that, even including four ships which did not eventually sail with him to the West Indies, his force would only be as 50 to the United States 132,¹ and his figures were in no way exaggerated.

Sampson's monitors were thoroughly unsatisfactory vessels. He wanted, before Cervera arrived, to attack Havana, which he believed himself able to capture; he was ordered, however, on the eve of hostilities, not to expose his ships to the guns of the better defended Spanish ports. The whole war was to prove "the difference between silencing a battery and destroying it by artillery fire" from ships. As soon as he was allowed to move, on April 21, he steamed from his base at Key West to Havana, off which port he remained with his armoured ships, detaching the smaller craft to blockade the other Cuban ports. On April 27 three of his ships shelled a battery at Matanzas and the Spaniards derisively reported that their casualties were only one mule. The difficulty of keeping the big ships coaled was found to be great though Key West was no more than ninety-five miles from Havana. On May 11, the *Winslow* and *Hudson*, two of his six torpedo boats, were severely handled in a reconnaissance off Cardenas Bay, and that same day an attempt to cut the five submarine cables at Cienfuegos failed; two were severed, but the other three remained intact.

The sailing of Cervera from St. Vincent produced a spasm of alarm in the United States for the safety of the seaboard, though the Spanish Fleet was so weak. The demand was made for little squadrons to be scattered along the United States coast. A relaxation of the blockade of Cuba followed. The Naval War Board believed that Cervera would make for San Juan or some port in eastern Cuba; and it directed Sampson, in case Cervera went to San Juan in Puerto Rico, to blockade him there. Sampson was always eager for action; and he decided, even before Cervera had reached the West

¹ Cervera, p. 28.

Indies, to go to San Juan and look for him there. Meanwhile the armed liners *Harvard*, *St. Louis* and *Yale*, were ordered on April 29 to cruise off Martinique, Guadeloupe, and Puerto Rico, and watch for the advent of the Spaniards.

Sampson arrived off San Juan with the *New York*, *Iowa*, *Indiana*, *Terror*, *Amphitrite*, *Montgomery*, *Detroit*, one torpedo boat, and a collier, early on May 12, and for nearly three hours bombarded the feeble coast defences, opening fire at 5.16 a.m.¹ His real object was probably to give his crews target practice, as it was soon ascertained that the Spanish squadron was not in port, and he had been ordered, as has been seen, not to risk his ships in action with coast defences. The ships circled at distances of 1,000 to 4,000 yards from the batteries and did not anchor; there was a heavy swell; and the shooting was quite ineffective though 1,222 rounds were fired. The masonry of the forts was a good deal damaged but only one gun ashore was temporarily put out of action. The Spanish loss was 3 killed and 39 wounded, with 19 civilians killed in the town of San Juan by projectiles which missed the forts. The effective guns in the forts were ten 9.4-inch howitzers and fourteen old pattern 6-inch guns.² They fired in all 400 rounds and made two hits with 6-inch shells, which killed 1 man and wounded 7 in the *New York* and *Iowa*, but caused no serious damage.

The bombardment was a mistake. The Spaniards complained that the town of San Juan had been shelled without notice. Sampson, who was a humane and kindly leader, never intended to direct his fire on the civilian population, and the projectiles which fell in San Juan were aimed at the forts. The withdrawal of the United States Fleet without any sign of success produced the impression that it had suffered a severe check. The expenditure of ammunition was considerable, and in view of the approach of Cervera's squadron might have had unpleasant results, if the Spanish cruisers had been well armed and equipped. Sampson was now 1,000 miles from Havana; he returned slowly westwards, finding his speed reduced by the monitors to 5 knots; and on May 14 was off Puerto Plata in the neutral island of San Domingo. He remained there till the 15th when he learned that the Spaniards had been at Martinique on the 12th and at Curaçoa on the 14th; and that Schley with the Flying Squadron had sailed from Hampton Road on May 13 for Charleston. He was ordered by the War Board to pro-

¹ *Reports*, p. 371. See Plan XI, p. 154.

² Jacobsen, p. 27.



THE SPANISH ARMoured CRUISER "VIZCAYA" SUNK AT SANTIAGO
Her big guns were defective and her ammunition bad. She made a gallant fight attempting to ram the *Brooklyn*.



THE UNITED STATES ARMoured CRUISER "BROOKLYN"
She carried Schley's flag at Santiago where she took a leading part in the battle and executed a turn which has been the subject of much controversy. [see pp. 140, 149
PLATE 10. p. 130]

ceed with all possible despatch to Key West, whither also the Flying Squadron was proceeding. It arrived on May 18.

The War Board on May 17 informed Sampson that according to information it had received—information which proved incorrect—Cervera had imperative orders to go to Havana or Cienfuegos, a port on the south coast of Cuba in railway communication with Havana. Sampson therefore did not watch Santiago. The fast liners *St. Paul* and *Yale* were ordered to cruise between Hayti and Jamaica; the liner *Harvard* between Hayti and Puerto Rico; and the cruiser *Minneapolis* north of Hayti. Sampson himself detaching the *Iowa*, with orders to her from the War Board to join Schley, took up a position east of Havana with the *New York*, *Indiana* and some smaller vessels, while two monitors and numerous small craft watched Havana. Schley left Key West on May 18 for Cienfuegos going round the west end of Cuba, and arrived there on May 22, where at noon he was joined by the *Iowa*. His force consisted of the *Brooklyn*, *Iowa*, *Texas*, *Massachusetts*, one collier and three small craft. The harbour of Cienfuegos is a deep inlet with a narrow entrance, and what was inside it could not be seen from the sea. Schley circled off the entrance, but took no energetic measures to ascertain whether Cervera was within, and did not even communicate with the insurgents. He was off the port with engines stopped, when on May 23 he received orders from Sampson to go to Santiago where it was thought that the Spanish squadron was lying, and, if possible, to be there by “a.m., May 24”. In case the Spaniards left he was to follow them wherever they went.

He did not act promptly on these orders but waited, preferring to believe that Cervera was in Cienfuegos, and not till late on the 24th (when it had been definitely ascertained from the insurgents that Cervera was not there) did he proceed to Santiago at a low speed. He arrived off Santiago in the evening of May 26 and there was joined by the *Harvard*, *Yale* and *St. Paul*, none of which ships had seen the Spanish squadron, though on the 25th the *St. Paul* had captured the British collier *Restormel*, off Santiago, with coal for Cervera. Without blockading that port or troubling to ascertain whether the Spanish vessels were inside it Schley announced that defects in his collier compelled him to make for Key West. His report caused consternation in Washington, as well it might.¹ He had previously sent from Cienfuegos a

¹ Long, i, p. 276.

message to Sampson, stating that owing to shortage of coal he could not blockade Santiago and must have at least two more colliers; and that for the time being he was proceeding to Mole St. Nicolas, in the neutral island of Hayti. Sampson, on receipt of this most disquieting news, sent the cruiser *New Orleans* to him with peremptory orders to blockade Santiago at all cost, and in the last resort to sink a collier in the entrance. Sampson with the *New York* was at Key West on May 27, coaling, and there found the battleship *Oregon*, which had arrived on May 26 after her long voyage, in excellent order and ready for work. He determined himself to go to Santiago.

Schley, when he decided on May 26 to go to Key West, ordered his squadron to proceed by the south side of Cuba and the Yucatan Channel, and with some delays steamed slowly west till 1.25 p.m. of May 28 when, after he had been able to coal two of his ships at sea, he turned and headed back to Santiago, off which port he arrived that evening. But not until 7.40 a.m. of the 29th did Schley's ships determine by visual observation that Cervera's cruisers and two destroyers were inside Santiago harbour. Schley's mistake throughout lay in assuming that Cervera would not take a course which was obviously disastrous in going to Santiago, where the Spanish squadron must be blockaded and destroyed.

Even when Cervera was located, Schley did not act with energy. The *COLON* was lying close to the harbour mouth and the fortifications were of negligible value. Had Schley allowed his battleships *Massachusetts* and *Iowa* to steam in close without entering the harbour, they could have inflicted great damage on the *COLON*. Though American naval officers were now authorised to expose their ships to heavy gun fire from batteries, in order to get at the Spanish war-ships,¹ he was content with a scrambling bombardment of her at extreme range on May 31, and she escaped all injury. On June 1 Sampson arrived, took command, and immediately ordered all the ships to close in towards the harbour mouth. He decided to seize an advanced base for coaling at Guantanamo, with a good harbour fifty miles east of Santiago. That harbour was entered by two of the small vessels in Sampson's fleet on June 7, and a battalion of marines was landed there on June 10 under cover of a heavy fire from the ships.

Santiago, a decayed town of 30,000 inhabitants in 1898,

¹ Long, i, p. 282.

stood at the northern end of a land-locked harbour which is bordered by mountains, four miles from the harbour entrance. The entrance is narrow and winding, and the width of the fairway at one point is reduced to 100 yards by shallows. Barbed wire entanglements surrounded the place, but the neighbourhood was in the hands of the insurgents, despite the 9,000 troops and volunteers present under General Linares, who were able to raise insufficient quantities of food in a small area of land protected by blockhouses. Provisions were exceedingly scarce; the troops were in wretched condition from want of food and from sickness; their pay was thirteen months in arrear. They were cut off from the rest of Cuba by mountains and forests, and though a force reached them at the end of June from Manzanillo, it brought little food and no money.

The fortifications at the harbour entrance were ancient and dilapidated and only mounted one modern long-range gun, a 6.3-inch weapon of thirty-five calibres taken from the cruiser REINA MERCEDES, which was lying in the harbour with defective boilers. A second gun of the same type was mounted on June 17. There were, besides, five 6.3-inch muzzle-loading rifles converted from smooth-bores cast in 1724, and a few old iron 8.3-inch rifled howitzers, but these guns from their limited range and weakness could do little more than make a noise. Two 6-inch breech-loading howitzers with two 3.6-inch modern Krupps were mounted on the headland of Punta Gorda enfilading the entrance, and two lines of mines, thirteen in all, were laid in the entrance, but they were defective. Thus at no time had the seaward defences of Santiago more than four breech-loading weapons of medium size, and these were too poorly supplied with ammunition and too feeble in calibre to be dangerous to the United States Fleet. The two modern 6.3-inch guns had between them only 200 rounds. There was really nothing but the difficulty of navigating the entrance to prevent the United States Fleet from forcing its way into the harbour at any moment.

The Spanish ships were "coaling frantically" when on May 25 the *Restormel*, laden with coal for them, was captured.¹ The *COLON* was at the mouth of the harbour but did not go out, Cervera arguing that the Americans would have sunk the *Restormel* if any attempt had been made to rescue her. A further difficulty was that the *COLON* drew so much water that, when there was a heavy swell, there was

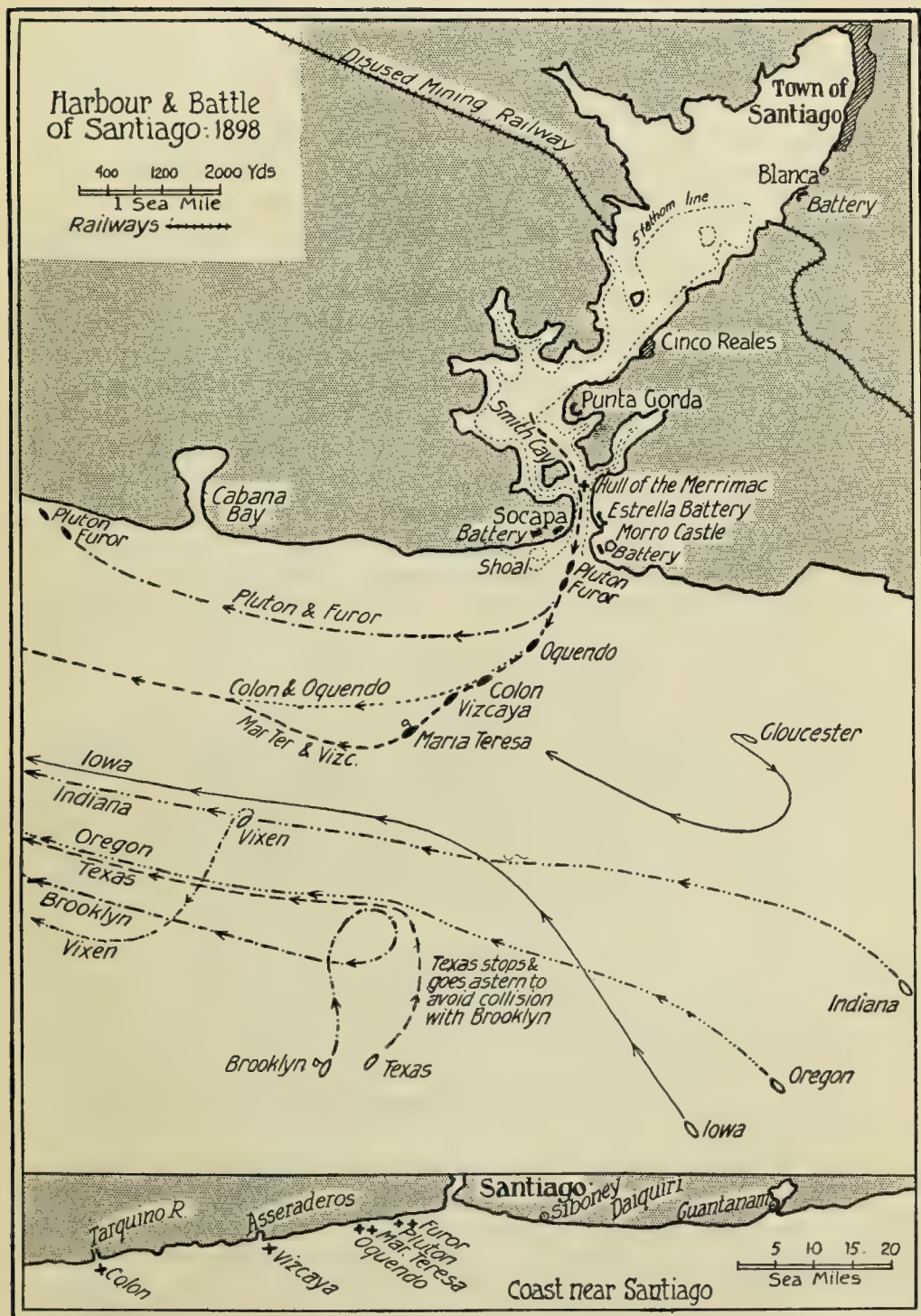
¹ Concas, p. 55.

risk of her grounding on the rocks at the entrance, in which case she would probably have become a total wreck and have shut in the remnant of the unhappy squadron. With the arrival of a powerful United States force off the port the fate of Cervera's ships was sealed. Sampson in June had available the *New York*, *Brooklyn*, *Iowa*, *Massachusetts*, *Indiana*, *Oregon* and *Texas*, six vessels each of which was much superior to any one of Cervera's cruisers, besides many smaller ships.

There were no torpedo craft with Cervera other than the two destroyers, both in poor order. The United States seamen had, therefore, no fear of torpedo attack and could keep close to the port at night as well as by day. By day and night the ships were disposed in a semi-circle, six miles distant from the Morro at the harbour mouth; they were ordered in smooth weather to coal on their stations. After June 7 at night the battleships moved in at dusk and one of their number kept a searchlight playing on the harbour mouth, which was further watched by three small picket vessels and three steam launches. Such arrangements were only possible because the Spaniards ashore had so few modern guns, so little ammunition, and such a complete want of searchlights.

Sampson's first act after arriving off the port was to ask for a force of troops 10,000 strong, to seize the heights commanding the entrance and thus open a way for the fleet. An expeditionary force under General Shafter was ready to sail from Tampa when reports of a Spanish cruiser off the north coast of Cuba led to delay. On June 14 the force, which had risen to 16,000, sailed, and on June 22 it began to land, not at Guantanamo which was considered too distant from Santiago, but at Daiquiri, a little place with an iron pier midway between these two points. Next day the advance on Santiago began. The landing was completed on the 26th with no serious opposition from the Spaniards.

In the night of June 2-3 a blockship, the collier *Merrimac*, was sunk by the American Fleet in the entrance to Santiago. She was specially prepared and was taken in by Naval-Constructor Hobson with seven volunteers, but nearly all the charges which had been arranged to sink her failed to explode, and though she was most gallantly placed in the fairway she did not completely close the passage. A violent fire was opened upon her, yet her small crew escaped. They were taken prisoners and generously treated by Cervera, who informed Sampson of their safety and exchanged them at an early date. On June 6, June 16 and July 2, the two weak



PLAN II



batteries at the harbour mouth were bombarded by the American Fleet with no result other than to kill 6 men and wound 81, putting one gun temporarily out of action. Many shells fell in the harbour and occasional hits were made on the Spanish ships. The old REINA MERCEDES was twice set on fire and a good deal damaged. The only hit of any importance on the United States ships was made by one of the old 8.3-inch howitzers on the *Indiana*, but the damage was slight. From the night of June 22 onwards a novel weapon was employed by the gunboat *Vesuvius* which carried three pneumatic dischargers for throwing shells loaded with high explosive to a distance of 2,000 yards. They were so erratic that they caused the garrison little concern.

With the landing of a considerable United States expeditionary force and the opening of operations against the town of Santiago Cervera had to consider what to do with the squadron. None of its innumerable deficiencies had been made good. The six 11-inch guns which it mounted had so far fired only two rounds apiece and the breech-blocks were known to be defective. The COLON had no heavy guns at all. The thirty 5.5-inch quick-firers in the ships had not fired a single shot, and between them they had only 620¹ rounds of trustworthy ammunition. The primers were unsatisfactory and three of the guns were unserviceable. The COLON's heavy draught prevented a sortie in any but perfectly calm weather. The VIZCAYA was so foul that her speed did not exceed 13 knots. But on June 25, General Blanco, the Captain-General of Cuba, requested Cervera to go out. Cervera replied in a document which is full of interest: "I, a man with no ambitions, with no mad passions, say most emphatically that I shall never order the horrible and useless hecatomb which can be the only result of attempting to force a passage out. I should hold myself responsible in the sight of God and of history for lives thus sacrificed on the altar of vain glory, and not in the legitimate defence of our country."

The squadron from its weakness was clearly doomed if it went out. The Spanish Government took Blanco's view and urged Cervera to quit the port at night and attempt to escape. Though two of his captains, Concas and Bustamente, favoured a night sortie if the squadron was to go out, Cervera himself thought that one was impracticable from difficulties of naviga-

¹ This is Cervera's figure: Captain Concas says only 300 trustworthy rounds out of 3,000.

tion in the glare of the American searchlights. The Spanish batteries were too weak to keep Sampson's ships at a distance and prevent them from playing a beam up the narrow winding channel. While some of Cervera's critics have accused him of exaggerating the difficulties of thus going out, the fact remains that in the blocking operations at Port Arthur a few years afterwards the Japanese officers found that the Russian searchlights rendered it almost impossible to reach the entrance to that harbour. Moreover, by day the American ships were more scattered; at night they closed in on the entrance. Cervera was still short of coal, for the consumption had been considerable during the stay at Santiago. A new difficulty had arisen in that a large part of the ships' crews had been disembarked to aid in the defence of Santiago against the United States troops ashore.

On July 1 severe fighting began about the Spanish left on land at Caney, where a little detachment of 500 Spaniards held their ground with great bravery and determination, and at San Juan where about 3,000 men, including the landing parties from the ships, defended the heights on the Spanish right, which command the town and harbour of Santiago. The United States warships supported General Shafter's attack by bombarding the Spanish works. Both positions were in the end carried by the American troops, but with 1,538 casualties, against which the Spanish loss was 593. Shafter, greatly alarmed by the rapid wastage of his force of 16,000, was ready to order a retreat and appealed earnestly for reinforcements. Had Cervera at this juncture been able to send the rest of his crews with all his small guns ashore (forty-four 1-pounders and eight machine guns) as he wished to do, both Caney and San Juan could have been held, and Shafter might have suffered a severe repulse. Even then the fall of Santiago could not have been averted, if the war had continued, as the United States superiority in force was overwhelming, but at least Spain might have obtained better conditions of peace. This was the precise moment when Cervera was ordered to put to sea in order to "save the face" of the Spanish Government.

Had Cervera been a really great officer—that he was chivalrous, unselfish, generous, personally brave and full of solicitude for the lives of the officers and men committed to his charge, has always been acknowledged—he would probably have declined to obey the orders given him by his government, and by Blanco, who were at a distance and did not



ADMIRAL W. T. SAMPSON

Commanded the U.S. Naval forces in the Caribbean in the war with Spain. [see p. 128]



ADMIRAL G. DEWEY

Commanded the U.S. Naval forces in the Pacific in the war with Spain. Won the Battle of Manila. [see p. 153]



ADMIRAL CERVERA

The Spanish Commander in the Caribbean: a most gallant and kindly officer. [see pp. 136-7]



ADMIRAL MONTOJO

The Spanish Commander at Manila; fought a hopeless battle bravely. [see p. 153]

know the facts. But with all his fine qualities of character, he was not a strong man. He had a good reason for remaining at Santiago. General Linares, the Spanish commander on shore, refused to send back the landing companies from the ships; and Linares's staff reported that the withdrawal of the seamen would mean the immediate fall of Santiago. But fresh and imperative orders came on July 1 from Blanco: "Ship with the greatest despatch all your seamen and leave at once." These orders arrived late in the evening, and during the night all fires were lighted in all the ships of Cervera's force. At daybreak he convened his captains and took counsel with them. All agreed that in face of the peremptory instructions there was no course but to obey.

To go out with the least possible delay was essential, because the insurgents could watch the harbour and would very quickly report to the American forces what was in progress. Cervera gave his instructions to his officers. He determined to lead in the *TERESA*, and, if the *Brooklyn* was in her usual station, close inshore to the west, to engage her and attempt to ram her. The other three armoured cruisers, without delaying to aid her, were to pass between her and the coast and thus endeavour to escape. The two destroyers were to take station to the lee of the bigger ships and at any favourable opportunity were to attack, but if no opportunity offered, were to steam off at their best speed. Any ships which escaped were to make for Cienfuegos or Havana. The hour of the sortie was fixed for 4 p.m. that day. The officers shook hands on receiving these orders. During the afternoon the landing parties were re-embarked, but at the appointed time the *VIZCAYA*'s men, who were greatly exhausted, had not yet regained their ship, and Cervera for that reason postponed his exit till next day. From the United States Fleet that evening it was seen that six columns of smoke rose straight in the still air from inside the harbour, near the entrance; and the *Iowa*'s signal staff had Signal 250—"Enemy's ships coming out"—bent ready to hoist.

CHAPTER VIII

The Battle of Santiago—Spanish Ships put to Sea—American Ships Attack—Cervera's Flagship Disabled—"Vizcaya" put out of Action—Other Spanish Ships sunk or driven Ashore—Hits and Casualties—Charges Against Schley—Fall of Santiago—Puerto Rico Attacked—Americans in the Far East—Dewey Steams to Manila—Destroys the Spanish Squadron there—Casualties—Capture of Manila—Camara's Unfortunate Voyage.

DURING the night the Spaniards removed the mines at the entrance. Cervera had not been given time to concert arrangements with the land forces, by which a vigorous fire from such few small guns as were available in the batteries should be directed on the blockaders. Unfortunately for him, one of the two 6.3-inch modern guns was put temporarily out of action by the bombardment on July 2. From the nature of the entrance to the harbour the Spanish cruisers would have to steam out in single file and thus one after another to present themselves to the raking fire of a powerful fleet. If any vessel was disabled in the entrance, all astern of her would be lost; the fairway, exceedingly narrow as it was, had been further obstructed by the sinking of the *Merrimac*.

As the cruisers emerged from the passage they would one by one be attacked by the Americans in the most unfavourable conditions. Allowing for the ineffectiveness of their six heavy guns, they mounted not one single weapon which could seriously damage their antagonists at medium range. "It was," says Captain Concas, who commanded the *TERESA*, "as if a few squadrons of cavalry had been sent against inaccessible entrenchments, after the enemy had been given time to fortify himself, choose his position and assemble large forces to annihilate his assailants." Cervera, in view of the possibility that one or more of his ships might be disabled in going out and the impossibility of manœuvring in the narrow

channel, ordered that the intervals between the cruisers were to be considerable, apparently four cables, while the destroyers were five cables apart and that distance from the last of the cruisers.

The Spanish ships were prepared for action as far as was practicable. But one structural defect in the three sister ships, TERESA, VIZCAYA, OQUENDO,¹ no art of the fighting man could remove. The two upper decks of these vessels were of wood, laid direct on steel beams, with no steel plating beneath them as was essential for safety. The wood was dry from the long stay in the tropics and the heat of the boilers. It could not be cut away and was certain to take fire when the hulls were struck by heavy projectiles. The 5.5-inch guns on the upper deck were without any protection other than weak steel shields, open at the back, and the men working them would be exposed to splinters.

Shortly before the sortie of Cervera's fleet Sampson in the *New York* steamed towards Siboney, east of Santiago, there to confer with Shafter, and still earlier in the morning of July 3 the *Massachusetts* left for Guantanamo to coal. The *New York* returned as soon as the alarm was given, but the *Massachusetts* took no part in the battle. The American ships off the entrance were disposed thus in a semi-circle from east to west: *Gloucester* (armed yacht), *Indiana*, *Oregon*, *Iowa*, *Texas*, *Brooklyn* (flag of Commodore Schley), and *Vixen* (armed yacht). Most of these vessels had steam for 10 knots. It was a Sunday morning and the day was radiant, still, and hot. By range-finder, Captain Concas determined the distance of *Brooklyn* to be about 9,800 yards from the entrance; the *Indiana* and *Iowa* were from his calculations a little nearer in, while the *Texas* was probably nearest of all, perhaps 7,000 yards out. If his observations are correct the positions shown in the official American plans are not accurate but place the United States ships too close in.

At 9.35 a.m. of July 3 the leading Spanish ship TERESA passed the Morro; a minute or two earlier an alarm gun was fired from the *Iowa* and Signal No. 250 was run up. All the American warships went to action stations and began to close on the harbour mouth. Cervera, after passing the Morro, had to stand out to sea for some distance in order to clear the dangerous Diamond Bank. His ship made a superb appearance with her red and yellow battle-flags, and behind her the

¹ They had been designed in 1887 before the Yalu revealed the danger of fire in battle. For details of the two fleets, see Table XIV.

other Spanish cruisers, *VIZCAYA*, *COLON*, *OQUENDO*, followed with precision and equal courage. Off the Diamond Bank each of the Spanish ships slowed to drop her pilot. As the *TERESA* slowed and turned, Cervera went to the conning tower and with the utmost calm gave the order to open fire. Already the ship had suffered severely; the pilot reported that there were many dead and wounded on board her and that she was even then ablaze. An end on battle opened as she steamed towards the *Brooklyn* which also was heading towards her. The two antagonists were approaching one another at a speed of 20 knots.

There was a hurried colloquy on the *Brooklyn's* bridge. Schley ordered the navigating officer to port the helm (for a starboard turn, towards the right, away from the *TERESA*). The navigator answered "you mean starboard" (to the left and towards the *TERESA*). But the turn was made to starboard, porting the helm which brought the *Brooklyn* close upon the *Texas* and forced that ship to stop and then to go astern. In the dense smoke—for most of the guns in either fleet were using smoke-producing ammunition—the confusion among the American ships was great for some seconds and there was a "mix-up" in which the *Iowa*, *Texas* and *Brooklyn* were involved. With good seamanship, collisions were averted, and the *Brooklyn's* turn in the end did no harm, though it took her some distance out to sea, when some minutes later she resumed her action with the Spanish cruisers.

The *TERESA's* attempt to ram was thus defeated, but she made numerous hits on the *Brooklyn* in those early minutes of the battle, despite her poor guns. She herself was terribly damaged. One of the first hits—from a 12-inch gun fired at a range of only 2,200 yards in the *Iowa*—cut an auxiliary steam pipe, and the escape of steam at once reduced her speed; another severed one of the chief fire mains. The rush of steam was such that the after 11-inch turret could not be worked, and the fires which had broken out astern could not be reached. A party which attempted to rescue a number of men cut off by the fire perished in the flames under the eyes of the horrified officers and men on deck. The chaos was frightful—dense smoke, scalding steam, furious fires and the incessant detonation of projectiles, which, with their huge steel splinters, caused terrible wounds. In the midst of it all came an explosion more violent than any that had gone before, which severely wounded Captain Concas.

Cervera took over the command of the ship. His own cabin was now ablaze; the after deck and chart house were burning fiercely, and the hail of shells made the fires each moment more dangerous. The ship was powerless to injure her antagonists. The after 11-inch gun was out of action; amidships and astern she was blazing like a furnace; and on the bridge, outside the conning tower, officers and men were put out of action with startling rapidity. The after-magazines were in peril, as they could not be reached and flooded on account of the flames and smoke. It was merely a question of time when they would explode. Cervera took the only reasonable course when he ordered his shattered flagship to be steered for a small beach, six-and-a-half miles west of Santiago, where he ran her aground, just as the engines stopped. Before the sortie arrangements had been made by Captain Concas to sink her in the last extremity and prevent her from falling into American hands. But as she struck a rock, and as all concerned in the arrangements were killed or wounded, she was not blown up.

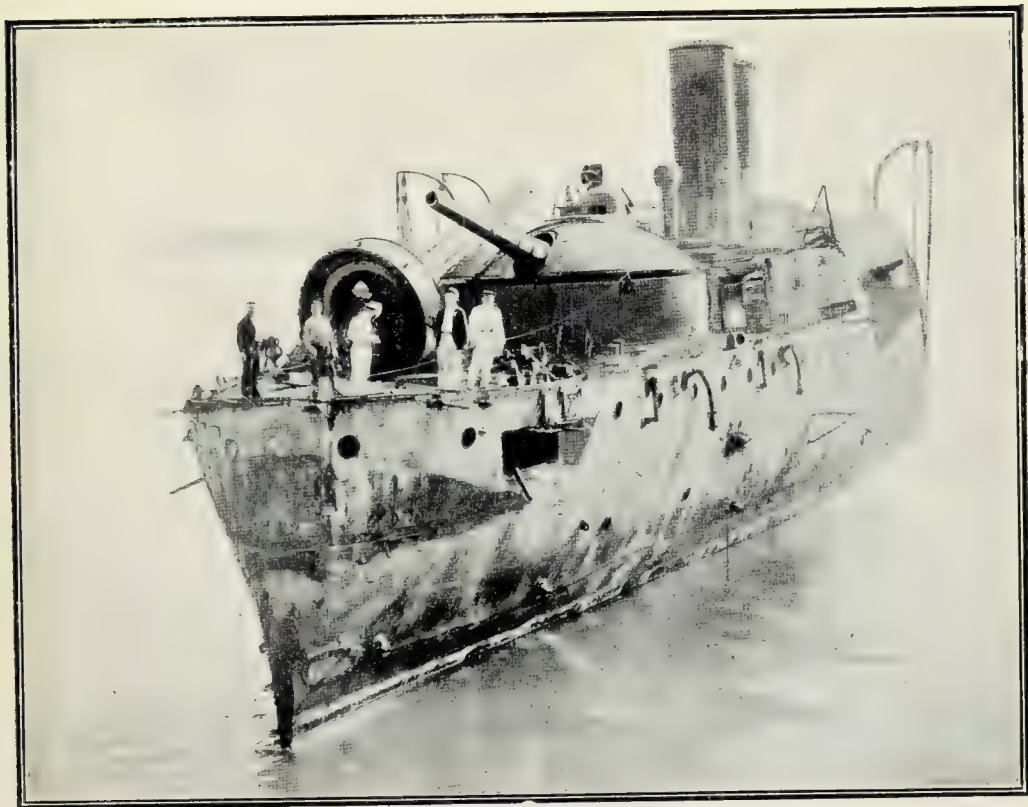
Her state was such as to preclude any possibility of salvage. The boats had been damaged in the battle and it was difficult to get the wounded and unwounded survivors ashore before the whole vessel was wreathed in flames. The magazines exploded in succession, not together as they would probably have done with high explosives or smokeless powder on board. Many acts of bravery were performed by the Spanish seamen in the rescue of comrades from the burning ship. The third boatswain swam back to her and brought off amidst the fires and explosions a man who was seen in her calling for aid and who could not save himself because he had fourteen wounds.

The VIZCAYA (Captain Eulate), second in the Spanish line, came out at a considerable distance behind the TERESA, and covered by the TERESA's bold attack upon the *Brooklyn* and by the confusion in the American Fleet which followed, at first did not suffer severely from the American fire. Her untrustworthy guns and ammunition made her own fire ineffective. In one of her 5.5-inch weapons seven cartridges in succession had to be tried before one could be found which would fire; another gun had an unbroken series of eight miss fires. The breeches refused to close; the projectiles jammed; and the percussion gear failed to act. In the upper-deck battery, when the ship became the target of the American guns, the loss was severe. She was engaged by the *Brooklyn*

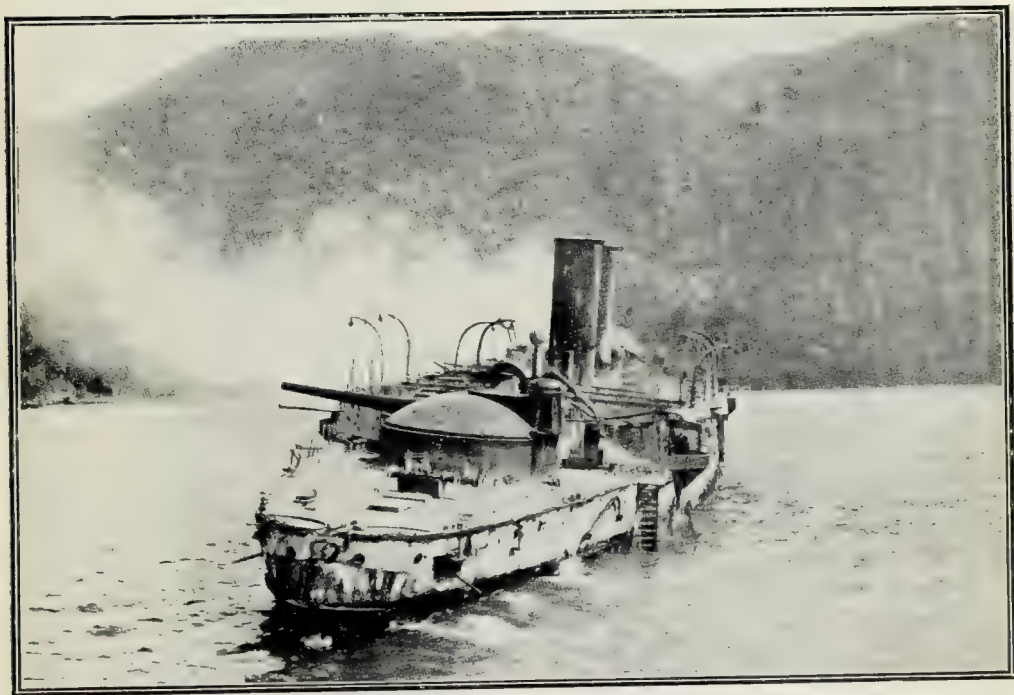
at about 2,500 yards, the *Oregon* at 3,000, the *Texas* at 6,000, and the *Iowa* at long range, the last-named ship gaining on her and rapidly approaching her as the pursuit continued. Against the *Iowa* only her after 11-inch gun would bear and this was untrustworthy; its breech could only be closed with great difficulty. Great fires broke out as in the *TERESA*. As the gun crews in the unprotected upper and main deck batteries perished, the *VIZCAYA*'s own fire died down. At 10.50 she had not a single gun that could be used, and Eulate determined to attempt to ram the *Brooklyn*. He turned to port but the *Brooklyn*, which was a much faster vessel, easily defeated this manœuvre and the American ships maintained their murderous fire on the shattered cruiser.

Eulate was severely wounded and left the bridge to have the flow of blood stopped, ordering the officer who took over the command not to surrender the ship but to beach her and burn her in the last resort. A heavy shell struck her forward, bursting a steam pipe, and, as Eulate thought, causing the explosion of some of her boilers; and a violent fire broke out. There was nothing to do but to head for the coast before the *VIZCAYA* blew up or sank. Off Aserraderos, fifteen miles west of Santiago, about 11.15, she ran aground. Only one of her boats remained serviceable; it was used for the transport of the wounded to the rocks, which were 100 yards distant, and the unwounded were directed to swim ashore. Both masts had come down; the ship was ablaze and the two funnels were red hot; every minute ammunition on board her was exploding; then came three explosions of extreme violence "sending columns of smoke and debris as high as the Cuban hills and descending in thousands of white streaks like a pyrotechnic waterfall." It was the end of the *VIZCAYA* after a heroic fight.

The *COLON* left the entrance third in the Spanish line, and headed west at her best speed, in obedience to her orders. Alone of the Spanish cruisers she was reasonably free from woodwork and well protected by moderate armour. As she came out she fired two 6-inch shells at the *Iowa*, both of which hit near the water-line. The damage they caused was inconsiderable, but if she had mounted her forward 10-inch gun the consequences might have been much more serious. Drawing rapidly ahead of the *Iowa*, she concentrated her five 6-inch and three 4.7-inch broadside guns on the *Brooklyn* and *Oregon*, and went fast away from the American ships when firing ceased for a time. She appears to have been



THE SPANISH ARMoured CRUISER "VIZCAYA" AFTER SANTIAGO
Both masts fell as the result of injuries caused by the American projectiles, and the ship was burnt out.



THE WRECK OF THE SPANISH ARMoured CRUISER "OQUENDO" AFTER SANTIAGO
A sister of the *Vizcaya*, she was completely wrecked by fires and the explosion of her magazines.
[PLATE 12. p. 142

steaming 17 to 18 knots, which was an exceedingly fine performance in the circumstances, after several months of service, most of it in tropical waters.

But at 1 p.m. the engineers on board her reported that the good coal had all been consumed. The fuel which remained was inferior; and despite all the efforts of the stokers the speed of the ship at once began to fall as the pressure in the boilers declined. The *Oregon* and *Brooklyn* now gained upon her and re-opened fire with their batteries, but the *Oregon's* shells still fell short. At 1.15 p.m., however, the *COLON* turned in and headed for the shore. Her speed was falling so quickly that her commander, Captain Moreu, determined to sink her in order to save her from becoming a prize of the United States Fleet. At the mouth of the Tarquino River, seventy miles west of Santiago, she ran hard on the beach. She had suffered little from the American fire, and if she had only had abundance of good coal on board could undoubtedly have escaped and reached a neutral port. Her loss was only 1 killed and 25 wounded.

The *OQUENDO* came fourth in Cervera's line, and as she passed the entrance was engaged by the *Iowa*, which ship steamed parallel to her at a range of 1,400 to 1,600 yards. Captain Evans of the *Iowa* reported, "I . . . opened on her my entire battery, including the rapid-fire and machine-guns [four 12-inch, four 8-inch, three 4-inch, ten 6-pounders and four 1-pounders on the broadside]. At this time she was under the concentrated fire of several of our ships and the effect was most destructive. She rolled and staggered like a drunken thing and finally seemed to stop her engines." Yet under this storm of projectiles she held on her course, and, as Evans says, "fairly smothered us with a shower of shells and machine-gun shots." A projectile from an American 8-inch gun pierced the 2.75-inch steel of the hood and burst just under the *OQUENDO's* forward 11-inch gun, killing the gun crew and disabling the weapon. At the fourth round one of the *OQUENDO's* 5.5-inch guns burst, putting all its crew out of action. The after 11-inch gun was damaged by a splinter from another shell and the officer in command of it killed. A shell burst in the after torpedo room, killed all the men there, and started a great fire which could not be got under.

The vessel was now burning fiercely amidships and astern. She was headed for the beach a little west of the point where the *TERESA* had run ashore, and, as a precaution, to prevent

her bow torpedoes from exploding when she took the ground, they were all discharged. At 10.30 she went ashore and the survivors set to work to rescue the wounded from the roaring flames, which rose to a great height from her hull. Captain Lazaga, her commander, fell dead as the crew were abandoning ship, probably because he had been wounded in the action, though it was thought that his heart had failed. He behaved with magnificent gallantry throughout. Besides the *Iowa*, the *Oregon*, *Indiana* and *Texas* had engaged the *OQUENDO*, while the *Brooklyn* had also given her an occasional shot.

The small destroyer *FUROR* followed the *OQUENDO* in this solemn progress of death. As she emerged in the clear morning light every United States ship within range fired at her and her survivors reported that from the very outset she was struck by shells of every calibre. She made no attempt to use her torpedoes, which were only the weak 14-inch pattern, probably because of the violence of this fire, and turned west after Cervera's other ships. Her main steam pipe was broken; her engines were hit; one of her boilers burst, and the others were speedily put out of action. Her steering engine was disabled. In the engine room a great fire broke out and burned fiercely though she had little wood in her hull. According to American reports she did not long survive after leaving the harbour entrance, but her senior officer states that the order to lower her flag was not given until 10.45, in which case she must have kept afloat at least thirty minutes under fire.

Among the dead on board her was Captain Villaamil, the commander of the torpedo flotilla, a deputy and a man of great reputation for his moral and physical courage. He was struck by a shell on the bridge and instantly killed. When she broke down completely she was about a mile from the coast, but her seamen were able to reach the shore, in some cases with the help of lifebuoys and debris. Boats were sent from the American warships which took off the remaining survivors just before a violent explosion took place in her hull and she vanished in a cloud of smoke and steam.

The *PLUTON* came last and received as heavy a fire as the *FUROR*. She was attacked in particular by the armed yacht *Gloucester* which mounted a number of small quick-firing guns. The Spanish crew stood bravely to their weapons but under the hail of projectiles their own fire was quite ineffective. At 10.45 she was struck by a large shell—according to

Captain Taylor of the *Indiana* either a 13-inch or an 8-inch projectile from that ship. This caused terrible damage and the vessel began to fill forward. Smaller shells struck her forward boiler which burst; and others exploded in the officers' quarters astern and started a great fire. The vessel was still under some sort of control, and she was headed for the shore. She struck the rocks with great violence, shattering her bow, and her crew for the most part reached the shore in safety. The hull slid off the rocks a little later. The white flag was hoisted and American boats arrived to rescue the survivors, almost immediately after which there was an explosion in the *PLUTON*, probably from a magazine astern, and she sank to the level of the upper deck, which remained above the surface.

It was thought at first that the *COLON* might have been salvaged, though before surrendering the Spanish crew had opened the Kingston valves. The forward portion of the ship was held by a ledge of rock but amidships and astern she was afloat, and as she filled there was every prospect that she would either break in two or slide off the ledge into deep water. That evening, after the battle the *New York* attempted to push her further upon the ledge and thus to prevent her destruction. Three separate thrusts were dexterously administered by the *New York* and the *COLON*'s hull was forced further forward on the ledge. The effort, however, failed. At 11 p.m. that night the *COLON* slowly turned over on her side and sank, showing a considerable part of her hull above water.

The Spanish crews and officers were as soon as possible removed to the American warships. Those of the men who had reached the shore were not safe there, as they had to fear attacks by Cuban insurgents, and most of them were taken off. A few, however, ultimately reached Santiago. Cervera was taken on board the *Gloucester*; he was naked, having removed his clothes to swim ashore, but he was received with the utmost courtesy and with every hospitality. He was then conducted on board the battleship *Iowa*. Captain Evans greeted him with all ceremony and with the respect due to his courage. As he came over the side, the officers saluted, the marines presented arms, and the buglers sounded an admiral's salute. When he bowed, stepped forward, and held out his hand to Captain Evans, the crew of the ship cheered him repeatedly. With similar ceremony and equal deference the Spanish officers and men were received in all the American

ships as gallant and worthy antagonists. Their discipline was excellent, and with better ships and that fuller preparation for which Cervera had pleaded in vain before the war the issue of the battle would have been very different. Bravery is not enough in the combat at sea.

The total of hits that could be discovered on the American ships was only forty and no real damage was done. The *Brooklyn* was struck twice on her armour belt close to the water-line, by a 6-pounder and by a larger projectile, possibly 5.5-inch or 6-inch which left a dent but did not perforate. One 6-inch shell pierced her side amidships and exploded, doing unimportant damage. Two 6-pounder shells struck her after-turret; and one 4.7-inch shell hit her side just under the foremost funnel, while two shells of the same calibre hit her aftermost funnel and a ventilator astern. The rest of her twenty-five hits were of negligible importance. One man only was killed in her and 1 severely wounded. The *Iowa*, besides the two 6-inch hits already mentioned, showed eight hits from small guns with no serious damage. The *Texas* was twice struck, one of the hits being by a 6-inch shell which wrecked the forward air shaft to the forced draught blower; the other was on the charthouse. She was considerably damaged by the blast of her own guns, which injured one of the crew. The *Oregon* was hit three times, twice by splinters of shells, but sustained no damage. The *Indiana* and *Gloucester* had no hits of any kind.

Against an American loss of only 1 killed and 10 wounded (one of whom was disabled by accident) the Spanish casualties were grievous, though insignificant in comparison with the losses of the Great War. Unfortunately, owing to the loss of all the Spanish ships and the destruction of their papers, exact figures for each vessel are not available. The total present for battle in Cervera's fleet appears to have been 2,222. Writing in 1900, Captain Concas states that the revised list of Spanish casualties showed 323 killed and 151 severely wounded.¹ He added that there were few slightly wounded; if fifty men are allowed under that head the total loss would have been 524, a percentage of about twenty-three on the total present. According to Spanish reports the heaviest loss was experienced by the *VIZCAYA* which had over 100 dead; the killed in other vessels seem to have been approximately as follows: *OQUENDO*, 80; *TERESA*, 70;

¹ p. 83

FUROR, 30; PLUTON, 40. In proportion to the crews much the heaviest losses were in the destroyers.

The visible hits on the four Spanish cruisers were examined by a board of American officers after the battle, and were analysed as follows:

Inches calibre of shell.	12 or		6 or		6-pdr.	1-pdr.	Total
	13-in.	8-in.	5-in.	4-in.			
TERESA	2	3	4	1	17	2	29
VIZCAYA	0	4	7	3	13	0	27
OQUENDO	0	3	2	9	43	0	57
COLON	0	0	4	0	3	0	7
	—	—	—	—	—	—	—
	2	10	17	13	76	2	120

The United States ships fired forty-seven rounds of 13-inch ammunition, thirty-nine rounds of 12-inch, 219 of 8-inch, 271 of 6-inch, 473 of 5-inch, 251 of 4-inch, 6,553 of 6-pounder, 780 of 3-pounder, and 796 of 1-pounder, a total of 8,060 projectiles. The percentage of hits actually observed, though there is good reason to believe that several were effaced by the explosions in the Spanish ships, was as follows: 13-inch, none; 12-inch 5.1; 8-inch 5.5; 6-inch 1.1; 5-inch 3.2; 4-inch 4.7; 6-pounder 1.2. The range was considerable for the 6-pounder, and evidence of the hits by this calibre was more easily effaced by fire and explosion. It seems surprising that three such vessels as the TERESA, VIZCAYA and OQUENDO should have succumbed to twelve heavy and medium projectiles distributed between them, but all the Spanish accounts agree that the bad fires were the real cause of their rapid collapse.

On the water-line the Spanish ships between them had only three hits, all from 6-pounders, which were of negligible importance. The TERESA's wreck showed that most of the hits were amidships; an 8-inch shell had pierced one of her 5.5-inch gun shields and exploded, killing all near; a second exploded further aft in the upper deck battery. The VIZCAYA's bow showed a hole through which a carriage could have been driven, caused probably by the explosion of torpedoes and of the magazine. She had eighteen hits amidships between the turrets, and the rear of the forward 11-inch gun shield was dented by shell splinters. So far as the OQUENDO's hull could be examined (and much of her water-line and side was under water aft) there were no water-line hits. A torpedo exploded under her after-turret, probably

from the heat of the fires, as it is extremely doubtful whether any of the torpedo explosions in the Spanish ships were caused by American hits. In the COLON there was no important injury to chronicle. Nearly all the Spanish guns had escaped damage from the American shells.

The technical conclusions drawn by the United States Board were that woodwork should be avoided and torpedoes should not be carried above the water-line in battleships or cruisers; that rapid fire was of supreme importance; and that all piping of importance should be below the armour deck.

The odds were enormously against the Spaniards. The following is a brief analysis for the warships actually engaged:

	¹ Tons.	Men.	Broadside ²	Killed.	Wounded.
U.S.A. Fleet	65,766	3136 ³	18,847 lb.	1	10
Spanish Fleet	29,580	2222	6,014 lb.	323	201?

The six heavy 11-inch guns in the Spanish ships are included, though at least three of them were unable to fire more than a couple of shots; the defective ammunition of the 5.5-inch Spanish quick-firers was a grievous handicap on Cervera. In protection there could be no comparison between the two fleets. The American gunners for the most fired from behind armour which the Spanish guns could not attack; the Spanish gunners were out in the open or protected only by thin shields. The American ships were relatively free from the woodwork which caused the great conflagrations in the cruisers of the TERESA class.

The battle (like that of Sinope) was an engagement between ships of a superior class on one (the United States') side, and ships of an inferior class on the other (the Spanish) side. The American Fleet included three good battleships (*Iowa, Oregon, Indiana*) and three vessels of the armoured cruiser type (*New York, Brooklyn, Texas*, though the last was classed as a battleship). It suggests a conclusion which the Great War drove home, that cruisers cannot engage capital ships in a gunnery action with any hope of success. Nelson, it is true, thought that three frigates had an advantage over one ship of the line, but neither at Sinope nor at Santiago had the fleet composed of inferior class ships any ascendancy in numbers. In broadside, the United States ships had on

¹ New York is included as present at the close of the action.

² Down to and including 4-inch guns.

³ 2851 complements plus 10 per cent. (285) extra men carried in war.

paper an advantage of three to one, and probably in actual fact, allowing for rapidity of fire and better ammunition, of over five or six to one, which was overwhelming. In displacement they had an advantage of more than two to one. And if their 13-inch and 12-inch guns made only a trifling number of hits, the moral effect which they exerted on the Spaniards was serious. All in the Spanish vessels were convinced that because of their weakness in offence and defence, they were destined to a disastrous defeat.

The uselessness of the torpedo of that date in an engagement between ships in movement at sea was demonstrated. The range of torpedoes was then short (1,000 yards) and the charge carried low—about 60 or 70 pounds. The United States armoured ships were equipped with thirty-seven torpedo tubes and numerous torpedoes; the Spanish cruisers carried twenty-two tubes and at least fifty torpedoes. All this material was wasted. The two Spanish destroyers, though there was a good deal of smoke from the guns and the fires, never tried to use their pair of torpedo tubes. It will be observed that two attempts to use the ram, made by the *TERESA* and *VIZCAYA*, were both easily foiled by the *Brooklyn*.

Some time after the battle, in 1901, charges against Commodore Schley of disobedience of orders, failure to discover that the Spaniards were not at Cienfuegos and to establish an effective blockade at Santiago, over-great caution in attacking the *COLON* on May 31, disobedience of orders in failing on July 3 immediately to close-in with all the United States warships on the mouth of Santiago harbour, and unofficer-like conduct in turning his flagship away from the enemy during the battle, led him to ask for a court of inquiry. The inquiry was granted; the members of the court were Admiral Dewey and Rear-Admirals Benham and Ramsay. On December 14, 1901, they acquitted him of all suggestion of cowardice, but the majority of the court, with some qualifications, censured his conduct as lacking in judgment, energy and enterprise. Opinion in the United States Fleet was almost unanimously against him. Needless to say Sampson¹ had nothing to do with the attacks on his subordinate, though it is known from his friends that he regarded Schley's caution as excessive.

During the battle some alarm was caused in the American Fleet by the appearance of a large white cruiser, which was at first thought to be the advance guard of a reinforcing squad-

¹ His warm-heartedness and generosity of character made him, perhaps, unduly tender.

ron from Spain. The vessel in question proved to be the Austrian Kaiserin Maria Theresia, similar in build to the Spanish ships. She narrowly escaped attack, as when she showed her flag the similarity of its colours to the Spanish ensign confirmed the United States officers in their belief of her hostile character. It is obviously unwise for neutral war vessels to approach the waters in which a battle is being fought.

Probably no power of man could have averted Cervera's complete defeat in the circumstances. He had not to deal with a Persano, but with an antagonist of energy and decision in Sampson. If he had made for Havana or Cienfuegos, his squadron might have escaped, but it must be remembered that he believed both these ports to be blockaded by strong American forces, and that his chief desire with his weak ships was to avoid a naval battle. Had he gone to Havana or Cienfuegos he could not have been forced out by a military expedition, as it would have been beyond the power of the United States to send such an army as could have quickly reduced either of these places which had at least 80,000 Spanish troops in their neighbourhood. A night sortie from Santiago, in the conditions of the blockade, did not offer much prospect of success unless the weather was rough, and then he was afraid that the COLON would not be able to pass the shoals at the entrance. But Cervera's own feeling of hopelessness deprived him of energy and led him to inaction when a bold effort might at least have greatly embarrassed the United States Fleet.

The errors and neglect of politicians are almost invariably expiated by the fighting man—often by the very man who has striven to rouse the politicians to the danger and to secure timely measures against it. The atonement for the neglect of the Spanish Navy by successive Spanish governments was made by the Spanish officers and men in the hecatomb of Santiago. The atonement for the failure to strengthen and prepare the British Army in the years before the Great War was made by the officers and men of that army in the months of agony at Ypres, when also the innocent paid with their blood for the neglect of the guilty. After the war Cervera and his captains were tried by the supreme Spanish naval and military court and most honourably acquitted. The judgment of posterity is that they made mistakes as all human beings must, but that they displayed a gallantry which covers their country with honour.

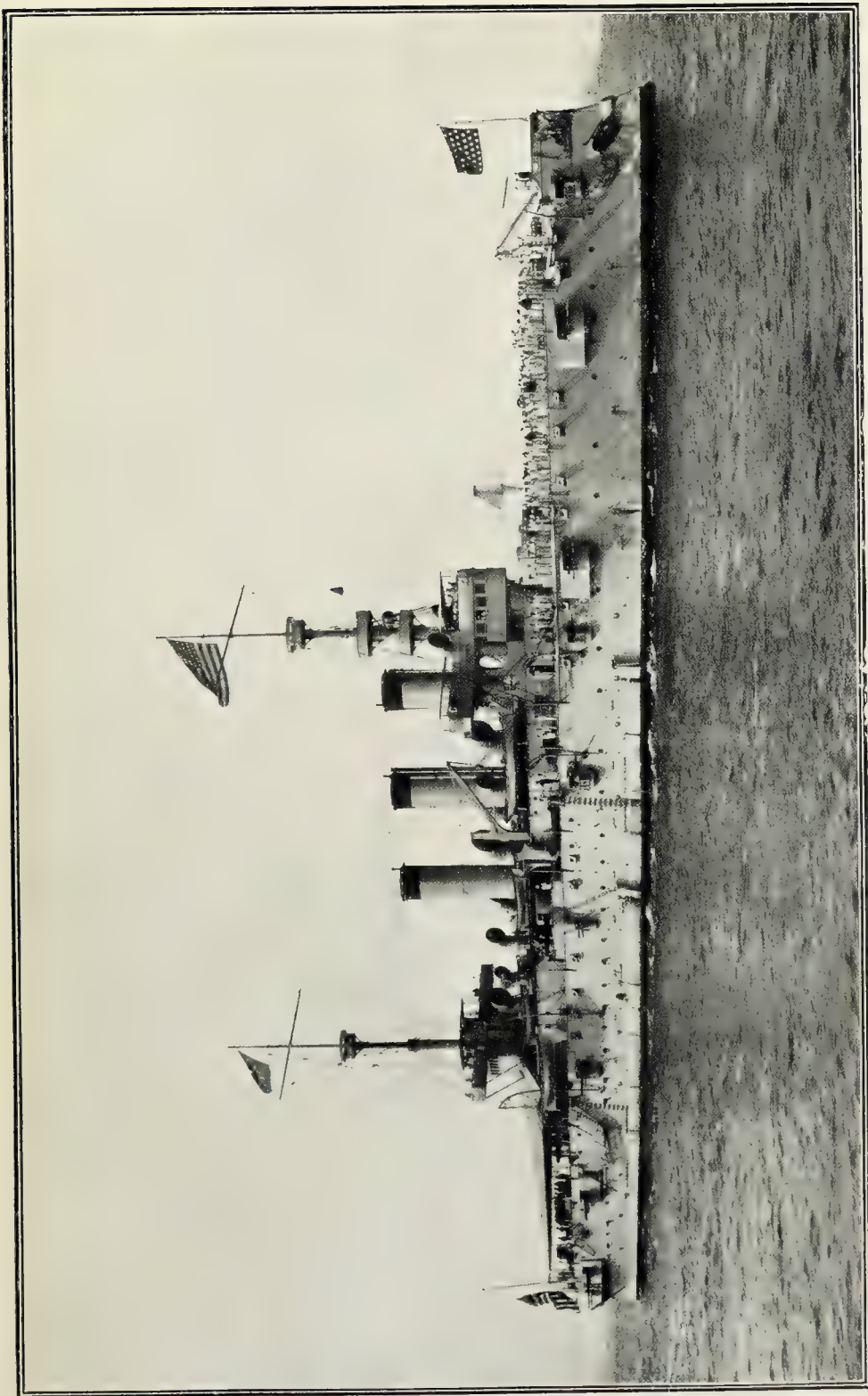


PLATE 13

THE UNITED STATES ARMOURD CRUISER "NEW YORK"

This powerful vessel carried Admiral Sampson's flag in the war with Spain and took part in the bombardment of San Juan

The fall of Santiago followed quickly, though Shafter's position seemed to him so dangerous that he clamoured for the American Fleet to force the entrance and attack the town from the harbour. On July 4 the old cruiser REINA MERCEDES was taken down to the entrance and sunk in it, to close it and prevent the American warships from coming in. Owing to the fire of the American ships she could not be placed properly across the channel, and thus her hull failed entirely to obstruct the channel. A suspension of hostilities from July 3 to 5 was agreed to by the United States officers, to allow the non-combatants in Santiago to leave before the place was bombarded, and the truce was prolonged till July 10 when a long range fire was opened from the fleet, while the United States army also shelled the town. The practice of the ships was corrected by reports signalled from the American lines before the town. The material effect of the bombardment was small but the moral effect was great. After a further bombardment on July 11 a flag of truce was sent in by Shafter, and on July 15 General Toral, commanding the Spanish troops, surrendered the town and all the Spanish forces in Eastern Cuba, 23,000 strong. They were by the terms to be transported in United States vessels to Spain.

The collapse of the defence at Santiago was thus the result of Cervera's defeat, and was a fortunate event for the United States. Yellow fever had broken out with virulence among Shafter's troops, and their sufferings were such that a re-embarkation might have been necessary had Santiago been able to hold out. It should be noted that Sampson had urged Shafter to direct his operations against the forts at the entrance to the harbour. These could have been much more easily attacked and would probably have fallen very quickly. Shafter, instead of making such an attack, allowed himself to become involved in a difficult land campaign for which his force was poorly prepared. Nevertheless, he finally succeeded in forcing "the back door" and taking Santiago by land operations. A naval base which is located within range of a powerful antagonist will always be exposed to such attack, as the capture of Port Arthur and Wei-hai-wei in 1894 and 1895, of Port Arthur a second time in 1904, and of Kiaochau in 1914, shows.

No further naval fighting of importance followed in the West Indies. The blockade of Cuba, which was extended on June 28 to the southern coast, was maintained with some difficulty, and in all fifty-six prizes were made. On July 4

the armed mail steamer ALFONSO XII was chased off Havana by the American armed yacht *Hawk* and driven into Meriel, where she was burned by the gunboat *Castine*. On July 18 the American gunboats *Wilmington* and *Helena* with five armed ships destroyed three transports and three gunboats at Manzanillo; and on July 19 the armed Spanish liner SANTO DOMINGO was chased by the armed yacht *Eagle* off the Isle of Pines and driven in to the coast and burned. On July 21 the American gunboat *Annapolis* with three armed ships destroyed a Spanish sloop in Nipe Bay; and on August 12 the defences of Manzanillo were bombarded by a small United States squadron.

The main United States sea-going force in the Caribbean after the battle of Santiago was organised in two squadrons. The first, under Commodore Watson, consisting of the *Oregon*, *Iowa*, *Newark*, three small craft and several colliers, was held ready to proceed to Europe and pass through the Suez Canal to Admiral Dewey's aid. The second, under Sampson, consisting of the *New York*, *Brooklyn*, *Massachusetts*, *Indiana* and *New Orleans*, was to accompany the first as far as Europe and demonstrate against the Spanish coast. In the meantime the American authorities decided to send an expedition under General Miles to capture Puerto Rico, and at General Miles's request Sampson detached two of his ships, the *Massachusetts* and *Dixie*, to convoy it, though he had already detailed for that purpose three monitors, two cruisers and four armed ships, a force which was really ample. The expedition left on July 21, about 30,000 strong; and on July 25 the first landing began at Guanica, which was seized by the armed yacht *Gloucester*. The Spanish resistance was negligible; the regular force in the island was only 8,223 men and was poorly equipped, though there were 9,107 volunteers. Preparations were made for a combined attack on San Juan, but before it could be delivered, on August 12 the peace protocol was signed and the war ended.

One minor naval encounter took place off San Juan, which place the American armed liner *St. Paul* was blockading when on June 22, the destroyer TERROR and the sloop ISABEL II came out of the harbour, and the TERROR headed for the *St. Paul*. The *St. Paul* carried six 5-inch quick-firers with twelve smaller guns. She opened fire on the TERROR at 5,400 yards and hit her with a 5-inch shell, which wrecked the starboard engine and killed 5 men, wounding 7 more. Fragments passed out of the vessel on the port side below the

water-line. Leaking and listing the *TERROR* ran back into shelter, but had to be beached as the water poured into her so fast. She was not repaired till a month had passed. The *ISABEL II*, observing that the *St. Paul* carried a powerful armament, returned to the harbour without venturing outside the shelter of the batteries.

The United States Navy attempted to cut the cables which connected Cuba with the outside world but without complete success. To the end of the war Havana remained in communication with Spain. Near the coast the Spaniards laid dummy lines, and farther out their cables proved unexpectedly difficult to locate and grapple.

While these events happened in the west, in the east a weak Spanish squadron had also succumbed to the attack of a powerful United States squadron. On the outbreak of war Commodore G. Dewey, who was sixty years old and had served with distinction in the Civil War, was at Hongkong with the American force on the Asiatic station. It consisted of the protected cruisers *Olympia* (flag, 5,870 tons, four 8-inch, ten 5-inch quick-firers, fourteen 6-pounder quick-firers); *Baltimore* (4,413 tons, four 8-inch, six 6-inch, four 6-pounder quick-firers); *Raleigh* (3,213 tons, one 6-inch quick-firer, ten 5-inch quick-firers, eight 6-pounder quick-firers); *Boston* (3,000 tons, two 8-inch, six 6-inch, two 6-pounder quick-firers), and the gunboats *Concord* (1,710 tons, six 6-inch, two 6-pounder quick-firers), and *Petrel* (892 tons, four 6-inch guns), with the armed revenue cutter *Hugh McCulloch* and two colliers. In view of the British proclamation of neutrality, the squadron steamed to Mirs Bay, which was not then British, and on April 24 Dewey received orders from the United States Government to proceed at once to the Philippines and capture or destroy the Spanish squadron there. In the Philippines, as in Cuba, the American forces were certain of aid from insurgents ashore. On April 30 Dewey was off Manila Bay, after the *Boston* and *Concord* had reconnoitred Subig Bay and found it empty. He determined to run into Manila Bay at midnight.

His arrival off the entrance was known to the Spaniards. The Spanish naval force, under Rear-Admiral Montojo, was so lamentably weak that it did not dare to venture out and deliver battle. It was, in fact, a collection of "old junk". Its best vessel, the *REINA CRISTINA* (3,090 tons, six 6.3-inch, eight 6-pounder quick-firers) was unseaworthy owing to leaks in her hull and the untrustworthiness of her boilers, though

Montejo hoisted his flag in her. The DON ANTONIO DE ULLOA, DON JUAN DE AUSTRIA, VELASCO, ISLA DE CUBA, and ISLA DE LUZON were poor little vessels of 1,000 to 1,100 tons, armed with 4.7-inch or 6-inch guns of old pattern. The CASTILLA was an old wooden rigged vessel of 3,300 tons, armed with 6-inch and 4.7-inch guns. The MARQUES DEL DUERO, CORREO and GENERAL LEZO were old gunboats. Not all these ships were manned; some were undergoing repairs.

The squadron, such as it was, was anchored off the Spanish dockyard of Cavite, from a desire to save the city of Manila from the risks of stray shells. A few mines of a defective type were laid at the entrance to Manila Bay, but could only be used where the depth of water was not too great for their moorings, so that access to the bay was easy. Other mines were laid near Cavite, but they had no influence on the action. From the great quantity of wood in the Spanish ships it was certain that they would burn furiously when exposed to shell fire. Little could be done to prepare them for battle, but in some of the vessels sand bags were used to give protection. The fortifications at Cavite were feeble and in wretched order; according to Spanish accounts the effective weapons mounted were only three, and of these one 5.9-inch gun alone would bear on Dewey's ships. In the works at Manila were several modern heavy guns, but they played no part in the battle.

Dewey ran through the entrance by the southern channel which is 8,000 yards wide without injury from the mines, and only a shot or two was fired by the weak batteries defending it. He dropped the *McCulloch* and the two colliers, which were to take no part in the fighting, and at 5.15 a.m. of May 1 was off Manila, where he was fired upon by the Manila batteries with powerful 9.4-inch guns and by a gun at Cavite. Towards Cavite Dewey led his ships in line-ahead, and very speedily came in sight of the Spanish squadron, moored in an irregular line east and west. It was a warm misty morning, and Manila Bay was quiet as a millpond. After the haze lifted the Americans could not have had better conditions for their target practice. Dewey's ships had been painted grey on the eve of war, discarding their usual white colour. The Spanish ships were also grey, but there was no risk of confusion seeing that they were stationary.

Montejo opened fire at long range, after the weak batteries at Cavite had begun the action and two mines were exploded by the Spaniards at a considerable distance from Dewey's ships. The object of this strange act was, according to



Spanish evidence, to clear the water off Cavite for Montojo's own manœuvring. The Spanish projectiles fell short of the American cruisers which came silently on, until at 5.41 Dewey gave the order to open fire and the *Olympia* discharged one of her 8-inch forward guns. All the other American cruisers immediately joined in, discharging their port broadsides at the Spaniards. The smoke was thick and, early as it was, the heat was intense. At the outset the American shooting was not good, but it steadily improved. Dewey led his ships along the Spanish line westward, and then turned and steamed east. Five times he passed backwards and forwards at ranges of from 2,000 to 5,000 yards, using chiefly his heavier guns and only employing the 6-pounders and lower calibres when the range shortened. The speed was about 8 knots.

For some time the American fire produced no evident effect. Through the smoke from Dewey's ships hits were made out on the Spaniards, but Spanish projectiles splashed all about the American vessels and it almost appeared as though both sides were suffering equally. The Spaniards fired principally at the *Olympia* and the *Baltimore*. Some efforts were made by Montojo to attack the Americans. Two launches ran out from Cavite towards Dewey's ships; one was sunk and the other driven back, riddled with small projectiles. It was afterwards alleged by the Spaniards that these were only market boats, proceeding to Manila. Montojo himself slipped the *CRISTINA*'s cables and steamed out towards Dewey, ordering by signal his other ships to follow his example, and this order the *DON JUAN DE AUSTRIA* obeyed.

The *CRISTINA* was immediately overwhelmed by the rapid and accurate fire of the American cruisers. She burst into flames and was completely wrecked, suffering terrible casualties. The magazines had to be flooded, and she was headed shorewards when the order was given to her crew to abandon her and sink her. Montojo was wounded and his flag captain, Cadarso, who had shown the utmost gallantry throughout and refused to leave his ship till all the wounded had been removed, was struck by a shell and killed as the last men were being taken overboard. The *CASTILLA* was almost as severely punished as the *CRISTINA*; she was set on fire in several places, and after suffering heavy loss she was abandoned by her crew when she was burning like a bonfire. Montojo transferred his flag to the *ISLA DE CUBA* and continued the battle, but nearly all his vessels were in difficulties.

At 7.35, however, just as the action seemed to be closing

Dewey ordered his squadron to draw off. The reason was that he had received from his flag-captain a report "which was as startling as it was unexpected. This was to the effect that on board the *Olympia* there remained only fifteen rounds per gun for the 5-inch battery." He feared that his other cruisers would be equally short, and he had reason to believe that the Spanish supply of ammunition was as ample as his own was limited. But when he had steamed out of range, it turned out that the report was mistaken; the *Olympia* had only fired fifteen rounds per 5-inch gun and had an ample quantity remaining. Meanwhile, he used the opportunity to give his crews their breakfast and to summon his captains on board the flagship for a conference. Greatly to his surprise he learnt that not a single life had been lost in his squadron and that the damage sustained had been negligible. The vigorous and well-directed fire against the Spaniards had provided the most efficient protection for the American ships.

At 11.16 he led his force in once more to complete the destruction of the Spanish ships. The *ULLOA* was the only vessel still in a state to fire and she offered a most gallant resistance, but after a few minutes of unequal fighting in which she alone engaged the whole American squadron, she went down with her flag flying. A shore battery on Sangley Point caused considerable annoyance with its single effective gun, and Dewey states that had this battery mounted four additional 6-inch weapons, which had been provided for it, but had been left at Subig Bay, his ships would have had many more casualties to report. Moreover, what few guns it could bring to bear could not fire on the ships when they approached within 2,000 yards. The *Baltimore* steamed in close to the battery and shelled it with her whole broadside, quickly silencing it, though not, it would appear, putting its few guns permanently out of action. She fired at the closest range and "the beach seemed to be torn up by the impact of her shells and the smoke and flame of burning powder."

The *Petrel*, which drew least water of Dewey's warships, was ordered to enter the harbour of Cavite and complete the destruction of any Spanish vessels lying there. After a few shots from her guns the Spanish flag was hauled down from the Government buildings and a white flag went up. All power of further resistance had ceased at 12.30, less than five hours after the action began. Dewey with his squadron now approached Manila. At 2 p.m. he sent a message to the Governor of that city stating that, if the Manila batteries fired

another shot at him, he would bombard the place. The Governor replied that the batteries would not fire "unless it was evident that a disposition of the American ships to bombard the city was being made."

With this curious half-truce the naval operations at Manila concluded. Dewey's report sent off that day to Hongkong, as he cut the Spanish cable when the Governor of Manila refused to allow him to use it, was to the effect that he had destroyed the Spanish squadron without injury to his ships and with only a few men slightly wounded.

The following comparison shows the weakness of the Spanish force:

	No. of Ships	Average Age Years.	Guns 6-in & Over.	Small Guns	Broad- side. lb.	Men.	Killed.	Wounded.
U.S.A.	6	9	33	94	3,700	1743	0	9
Spain	10	14	11	88	1,273	1965	167 ¹	214

The heaviest loss was in the CRISTINA (220) and CASTILLA (103). The shore batteries reported 10 casualties, 6 of them men killed. There is some dispute as to the number of men in the Spanish squadron which was placed by a Spanish staff officer at only 1,134, while the same authority stated the killed at 58, and the wounded at 236. The figure in the table is Admiral Montojo's and would give a percentage of loss of nearly nineteen on the men afloat in the Spanish squadron.

The Spanish ships were so much damaged by projectiles and by fire that the number of hits on them is a little uncertain.² No water-line hits were discovered on any of the hulls that were examined. The CRISTINA showed thirty-nine hits, the CASTILLA forty, and the DON ANTONIO DE ULLOA thirty-three. The rounds fired by the American ships and their percentage of hits was as follows: 8-inch, fourteen hits with 157 rounds, 9 per cent.; 6-inch, 635 rounds, seven hits, 1 per cent.; 5-inch, 622 rounds, twenty-two hits, 3.5 per cent.; 6-pounder, 2,124 rounds, thirty-one hits, 1.5 per cent.; small guns, 2,321 rounds, nineteen hits, 1 per cent. Much the most effective shooting was done with the 8-inch guns, and the damage which the 8-inch shells inflicted was most serious.

¹ Long (i.p. 199) gives the Spanish killed as 381; I have given the contemporary United States official return, as Long's figures seem to be arrived at by adding the wounded to the killed.

² The ISLA DE CUBA and ISLA DE LUZON were raised some time after the war, when it was found that they had been scuttled by the Spanish crews and that they had only 2 hits between them.

The *Baltimore* and *Boston* each received five hits; the *Olympia* was hit three times in her hull and ten times in her rigging; the *Raleigh* and *Petrel* each had one hit; and the *Concord* was untouched. In no case was serious damage caused and the squadron was ready to prosecute further operations and to fight, if need arose, three more actions of the same character.

Feeble though the force of the Spaniards was and insignificant as was their power of resistance owing to bad ships, bad guns and ill-trained gunners, Dewey did his work most efficiently and showed abundance of enterprise and dash. He was thanked by his government most deservedly and appointed to the rank of Acting-Rear-Admiral; and after the war in 1899 was made full Admiral, a rank which since Farragut's day had not existed in the American Navy. Montojo, on his return to Spain, was tried for the loss of his squadron and was acquitted, Dewey himself testifying by letter to the extreme gallantry of his defence and the determined resistance of his flagship. With miserable material Montojo did the best that could be done; his only other course would have been to remove the guns from the ships and to mount them ashore, when they might have prevented any serious attack on Cavite.

The action gave Dewey a useful base at Cavite and complete control of Manila Bay, with the command of the sea against the Spaniards in the East. But until troops arrived he could not secure Manila, and there was some fear that an armoured squadron would be sent against him from Spain. He captured the Spanish gunboat *CALLAO* on May 12, as she came into Manila, not being aware that war had broken out. On June 30, 2,500 troops arrived, convoyed by the cruiser *Charleston*, after Guam in the *Ladrones* had been seized on June 20, its governor being unaware of the war. A second force of 3,500 troops arrived on July 16. The monitor *Monterey* reached Manila on August 4, when Dewey at last had a powerful armoured ship in his squadron; a second monitor, the *Monadnock*, came in on August 16. These reinforcements enabled him to take a firm line towards the German Rear-Admiral *Diedrichs*, whose arrival with a German squadron caused him no little anxiety, the more so as there were reports that William II was anxious to obtain the cession of the Philippines from Spain. Dewey, however, speedily learnt that he could reckon on the support of the British forces on the station, and Captain E. Chichester (afterwards

Sir E. Chichester) commanding the British cruiser *Immortalité*, warned Diedrichs unofficially of that fact. When the Germans realised that the United States meant to stay at Manila, difficulties ceased.

On August 7, the American commanders, Dewey afloat and General Merritt ashore, gave notice to the Governor of Manila, General Jaudenes, that on the 9th they would begin operations against the city by land and sea. To save the city he decided to surrender to a show of force. On August 13 the *Monterey*, *Charleston*, *Baltimore*, *Boston*, *Concord*, *Olympia*, *Raleigh*, *Petrel* and two captured Spanish ships stood in towards the forts and shelled the main Spanish work at Malate for about an hour without the work replying. At 10.35 a.m. the American troops ashore entered the fort without resistance and the Spanish flag was hauled down; less than an hour later the white flag was made out flying over the city, and at 5.43 the Spanish flag in Manila was formally lowered and the United States flag run up with great ceremony. Thus the United States became masters of the Philippines and made their appearance as an Imperial Power in the Far East. Early in the following year the American forces were engaged in war with Aguinaldo and the Philippine insurgents who were by no means anxious to exchange Spanish for American domination. In this protracted conflict the United States Navy had much work to do but serious fighting was entirely absent, the insurgents having no naval force.

The Spanish Government during the struggle in the East made some half-hearted attempts to send reinforcements to Cuba and to fit out a fresh squadron for Manila. On May 27 the Minister of Marine ordered Admiral Camara, commanding the Spanish reserve squadron, to take that force to the Canaries (which are Spanish) and there coal and provision his ships for a long voyage. This done he was to organise them in three divisions and leave the Canaries with them in a body. When out of sight of land the three divisions were to part company with different objects. The first under Camara himself, composed of the armoured cruiser *CARLOS V* (9,090 tons, 19 knots, two 11-inch, eight 5.5-inch and four 3.9-inch quick-firers), the armed liners *RAPIDO*, *PATRIOTA* and *METEOR*, and the armed yacht *GIRALDA*, was to steam to Bermuda and then carry out "a series of hostile operations against the American coast." After going north the squadron was to double back to the West Indies and attempt to reach Havana, Santiago or San Juan.

The second division, composed of the second class battleship PELAYO (9,900 tons, two 12.5-inch, two 11-inch, and nine 5.5-inch guns), old armoured vessel VITORIA (7,250 tons, eight 9-inch muzzle-loading guns) with the destroyers AUDAZ, OSADO and PROSERPINA, was to vanish and cruise for ten or twelve days north-eastward of the Canaries, and then to return to Spain. The third division of three armed liners, the BUENOS AIRES, ANTONIO LOPEZ, and ALFONSO XII, was to cruise off Cape San Roque as long as its coal held out, and capture merchantmen trading between the Atlantic and Pacific seaboard of the United States. Had it been possible to carry out this scheme the United States operations against Cervera and Santiago would have been greatly embarrassed if not rendered impracticable for a time. But the CARLOS V and the armed liners, without colliers or bases, could at the best have made only a few raids; they were not capable of prolonged cruising or meeting in battle the powerful American ships.

On June 15 the reserve squadron was still at Cadiz unready for sea, when fresh orders were issued to it. The Spanish Government, under popular pressure, determined to send all its effective ships to the Philippines. Camara was therefore directed to steam to Port Said, detaching on his way four of the Spanish auxiliary cruisers. With the armoured vessels PELAYO and CARLOS V, the armed liners PATRIOTA and RAPIDO, two transports, and five colliers, he was then to start for Manila, coaling in the Red Sea or off Socotra, in the Laccadives, and on the coast of Sumatra. His destroyers were not to accompany him but were to be sent back. A force of about 4,000 men was carried in the transports. On June 16 Camara at last left Cadiz, and on the 26th put into Port Said and asked permission to coal.

The Egyptian Government refused on the ground that he had abundant fuel in his bunkers to return to Spain, and would not even allow him to transfer fuel from his colliers to his warships. On June 29 he was requested to withdraw his squadron as his stay in the harbour had considerably exceeded the twenty-four hours permitted by the Egyptian neutrality regulations; and when he asked permission to execute certain repairs, this also was refused him. On July 1 he sent two of his vessels into the Suez Canal and with the others steamed outside territorial waters, where he attempted to coal the PELAYO from the colliers. A heavy sea ran, however, and he was able to do little. On July 5 and 6 the bulk of his

squadron passed through the Suez Canal, and he was requested to leave Suez within twenty-four hours. All July 7 he lay in the offing, outside territorial waters in the Red Sea, but on the 8th he received his recall and entered the canal once more. Thence he steamed to Carthagena.

His return to Spain was accelerated by the news of Santiago and reports, which were true, that a powerful American flying squadron under Commodore Watson was about to cross the Atlantic to Europe. With two good battleships in the *Iowa* and *Oregon* and three good auxiliary cruisers it would have made very short work of Camara's force, had it met him. In any case Camara's force was much too weak to effect anything even if it had been able to reach Manila. It could not have arrived—allowing for its difficulties of coaling—before the middle or end of August, by which time Dewey had received powerful reinforcements; and it would then either have been destroyed or have been driven into neutral ports.

The main conclusions which are to be drawn from this war are that weak squadrons in remote colonies are always a source of danger; that sea-going qualities are of the first importance in warships as was shown by the constant difficulties experienced in utilising the United States monitors; that in action woodwork in ships is a great danger; that rapid and accurate fire upon the enemy gives good protection¹; and that finally naval war is influenced to an extraordinary extent by the problem of obtaining fuel. The engagements of this conflict were so uneven that they yield little technical information, but they do suggest what Lieutenant Baudry has urged in his well-known work, *La Bataille Navale*² that "in the modern conditions of the gunnery action, a 'useful defeat' in which one combatant by sacrificing himself inflicts on his adversary damage in proportion to that which he suffers himself, is an almost impossibility." The same lesson is taught by the battles of Coronel and the Falklands. With competent leadership on the part of the superior force, the weaker is destroyed and the loss of the superior force is insignificant. This is in apparent contradiction with one of Nelson's principles,³ "by the time the enemy has beat our fleet (then much weaker than the French and Spaniards) soundly, they will do us no harm this year." Nelson's principles, however, for the most part referred to an opponent with ships in

¹ Jutland experiences showed good armour protection to be necessary in the capital ship.

² p. 90.

³ Mahan, *Nelson*, ii, p. 306.

poor order and badly manned, for the French Navy during the revolutionary wars never recovered from the shock of the revolution. The value and the limitations of sea power were illustrated in the operations. Dewey could not safely challenge the land defences at Manila after he had destroyed the Spanish squadron. Sampson, after Cervera had been forced into Santiago by the pressure of sea power, needed a land force to complete the destruction of the Spanish squadron and it was the advance of that land force on Santiago that led Blanco to order Cervera out.

Owing to the liberality of the United States Navy Department in publishing full and impartial accounts of the operations in this war, the fund of information regarding it is large. On the Spanish side the lack of similar official information is to some extent supplied by the documents which Cervera published, by his flag-captain's account of his operations, and by other works of Spanish officers who took part in the campaign.

CHAPTER IX

Russia and Japan—Control of Korea—Russian Mistakes—Plan of Operations—Russian Force Scattered—Togo as Commander—the Japanese Fleet—Japan's Natural Advantage—Russian Organisation—The Vladivostock Squadron—The Czar's Instructions—The Port Arthur Fleet ill Prepared.

THE war between Japan and Russia which began in February, 1904, was preceded by a long period of growing diplomatic tension. In 1902 the Japanese Government had secured a defensive alliance with the British Empire by a treaty which in its third article laid down that if any other state should join in hostilities against one of the allies, while engaged in war, the second contracting Power would come to the assistance of that ally and conduct war and make peace in common. This treaty protected Japan against any such combination as that of Germany, Russia and France, which had in 1895 deprived her of Port Arthur and Wei-hai-wei. But it is a complete delusion to suppose that she was eager for war with Russia. On the contrary, her government sedulously strove to reach a friendly settlement with that Power, and was supported in its efforts by British diplomacy.

The Russian occupation of Manchuria had alarmed Japan and caused disquiet in England. If Russia advanced—as she seemed to intend—and gradually occupied Korea, then the danger to Japan would become extreme. A glance at the map will show that a powerful Russian Fleet, based on the magnificent harbours in southern Korea, and in direct communication with European Russia by the Siberian railway, which was opened to Port Arthur in 1903 and could easily be extended through Korea, would dominate the Sea of Japan and threaten Japanese territory and independence. Port Arthur had passed into Russian hands in 1897 and had been strongly fortified, though it had not been adequately developed as a naval base. Vladivostock had been Russian for nearly half a century and was fairly equipped as a naval base and

connected with the Siberian railway. Russian control of Korea would plant a first-class naval and military Power in a position of overwhelming strength in the Far East, whence it could strike at the very heart of Japan. Just as England has always made it a vital aim in foreign policy to prevent the subjection of Holland and Belgium by any great European Power, so it was a vital aim of Japanese policy to prevent Russian dominance in Korea.

If there was to be a struggle between Japan and Russia, before Korea was annexed and absorbed in the Russian Empire, sea power must obviously play a determining part. Without control of sea communications, it would be impossible for Japan to operate on land, and operate on land she must if she was to prevent the Russians from over-running Korea. She must therefore have a naval force sufficiently strong to defeat or contain the Russian naval force in the Far East. But this was not all; she must also have land forces sufficient to defeat or hold off from Korea the Russian land forces, which could be steadily increased as the Siberian railway brought up reserves from Europe. The capacity of that line, however, was at that date strictly limited; it had only a single pair of rails and there was a break in it at Lake Baikal, across which trains in summer were conveyed in a train ferry. In winter, troops or passengers had to detrain and cross the ice in sledges. The distances were immense—about 5,000 miles from Moscow to Port Arthur—and much of the country through which the railway passed was desolate or unsettled. Most of the supplies for the Russian army had therefore to be drawn from European Russia, though Manchuria was a rich province and produced a good deal of corn.

Japan's task before entering upon so terrific a struggle with so formidable an antagonist was to maintain the correct balance between her navy and army, so as to avoid any dissipation of force. An insufficient navy would paralyse her army; an insufficient army would render naval success fruitless. The problem was one of extreme perplexity for her government and people, for at this date she was a poor country with strictly limited resources, and the manner in which it was solved reflects the highest credit upon her statesmanship.

A competition of naval armaments preceded this conflict as it preceded the Great War, ten years later. But for some reason, probably muddleheadedness, the Russian Government failed to show the concentration of purpose and the power of hard and correct thinking which marked Japan. In

1902, Japan for the time being held a distinct superiority at sea with six good battleships and six good armoured cruisers. Had she struck then, the Russians at sea could have offered only a weak resistance. Subsequently, the Russian Government hurried ships to the Far East as fast as they were completed, but it failed to expand its dockyards on the Pacific and to press forward its programmes with the energy required, if it meant to challenge war with the Japanese. For example, the battleships BORODINO, SUVAROFF, OREL and ALEXANDER III, which were launched in 1901-2, might with vigour in the administration have been ready by the close of 1903. At that date England was completing battleships in two years from the date of laying down.

In Russia, there was a dissipation of effort instead of a resolute concentration on the vital object. Though the Russian Fleet in the Black Sea would in war be confined to that sea unless danger of war with European Powers was to be accepted, that fleet was strengthened between 1890 and 1900 with ships which, with greater foresight, would have been built in the Baltic. The money spent on them was wasted so far as concerned a war with Japan.

Moreover, while Japan maintained a distinct homogeneity in her armoured ships so that they were designed to act together, the Russian Navy was too much a collection of specimens. Its units were generally formidable and they stood up well to severe punishment, but they were of such varied types, sizes, coal endurance, speed and armament as seriously to interfere with their employment in large squadrons. Several small coast-defence vessels were built for Baltic operations and absorbed money and energy that would have been better devoted to powerful sea-going ships. The armoured cruisers in the Russian Navy were as curiously uneven as the battleships. Side by side with such ships as the RURIK, ROSSIA and GROMOBOI, was the much smaller BAYAN.

As the risk of war increased, all available Russian armoured ships were not concentrated in the Far East, as they might have been. Such vessels as the SISOI VELIKY, NAVARIN, NICHOLAS I and ALEXANDER II, were left in the Baltic. Three of them had been in the Far East and were sent back to Kronstadt to be refitted when the work ought to have been done at Port Arthur or Vladivostock. Though they were of the second class, their presence in the Far East at the outbreak of war would have added greatly to Japan's difficulties. Doubtless one of the reasons which prevented the Russian

Government from despatching these ships to the Far East was the insufficient accommodation at Port Arthur, but that was a handicap which could easily have been overcome by developing Dalny.

The following brief statement shows the movement of Russian ships to the Far East in 1903. There arrived at Port Arthur:

In March: fast cruisers ASKOLD and VARIAG.

In May: battleship RETVISAN; cruisers NOVIK, DIANA, PALLADA.

In June: cruisers BOYARIN, BOGATYR, with seven destroyers.

In July: battleship POBIEDA.

In December: battleship TZESAREVITCH, armoured cruiser BAYAN, seven destroyers.

There were also under orders for the Far East in December the battleships OSLIABIA and NICHOLAS I; the protected cruisers AURORA and ALMAZ; the old armoured cruiser DMITRI DONSKOI; and seven destroyers, all of which at the end of 1903 were in the Mediterranean. In early December, 1903, the Russian Government attempted to buy the two new powerful Chilean battleships, *Constitucion* and *Libertad* which were just approaching completion in England and were on the market. The British Government, however, fearing a disturbance of the balance of naval power, stepped in and secured them for the British Navy where they were renamed the *Triumph* and *Swiftsure*. Meantime, deeply concerned at the growing strength of the Russian Fleet, the Japanese Government purchased from the Argentine two good armoured cruisers, the *Moreno* and *Rivadavia*, which were building in Italy and were almost complete. They were renamed *Nisshin* and *Kasuga*, and were similar in design to that excellent ship, the *Colon*, which had fought in Cervera's luckless squadron at Santiago, though they were more modern and equipped with guns of extreme range and power for their size. Not till January 8, 1904, were they able to leave Genoa in charge of two British reserve officers.

At that date Japan did not build armoured vessels and was entirely dependent on foreign yards for them. She was, however, preparing to construct them, and had already established big-gun and armour plants which were of the utmost service in the war, though in 1904 their capacity of output was only small. In January, 1905, she laid down the first large armoured ship to be built in a Japanese yard, the *Tsukuba*



PLAN 13

and at the close of the war she had four large armoured ships at home on the stocks and two more approaching completion in England. But for the immediate necessities of a war with Russia there was nothing whatever behind the Japanese Fleet as it stood on January 1, 1904. Behind the Russian Fleet on the other hand were numerous new and powerful vessels completing which might sooner or later be expected to join the Russian force in the Far East, and did actually go East, though not until it was too late. Time was therefore a consideration of the first importance in the Japanese operations.

The Russian Staff had discussed plans long before the war and had arrived at thoroughly unsound decisions. In 1901 a naval committee examined the strategic problem and concluded that the task of the Russian Fleet would be to "secure command of the Yellow Sea and South Korean waters," when the Japanese would be unable to disembark troops anywhere. The committee determined to divide the Russian Fleet between Port Arthur and Vladivostock. The main body was to be stationed at Port Arthur "to command the Yellow Sea"; a detachment was to be sent to Vladivostock to attack Japanese communications and raid the Japanese coast. There was no idea of concentrating every effective ship for an immediate battle, but, on the contrary, the scheme involved a dangerous dispersion of force which would favour the plans of a resolute antagonist, who was fighting for life.

The defeat and destruction of the Japanese Fleet was hardly considered and the main Russian Fleet was apparently to act passively and wait to be attacked. Possibly this plan was inspired by the theory of the "fleet in being" current about that period in England, under which it was assumed that so long as a powerful fleet was in existence, any movement of troops oversea was impossible, or certain to lead to disaster. Events were very speedily to prove this singular doctrine an error of the worst and most mischievous kind. In 1902 the Russian plans were once more scrutinised and maintained intact. In October, 1903, when war had drawn perceptibly nearer, Major-General Flug, military adviser of the Russian Viceroy, Vice-Admiral Alexeieff, was asked by the Russian General Staff yet again to examine the proposed strategy and dispositions of the Russian Fleet in view of the fact that the plan of campaign on land would be largely dependent on operations at sea. He consulted Rear-Admiral Vitgeft, Chief of the Russian Naval Staff in the Far East, and

was informed by him that "our fleet cannot be beaten by the Japanese Fleet, whether in the Gulf of Korea or in the Yellow Sea"; and that, therefore, a landing by the Japanese in the Gulf of Korea or at Newchwang was "absolutely impossible."

This conclusion of Vitgeft's with its ill-founded confidence was made the basis of all the Russian plans. It was accompanied by a second and not less disastrous misjudgment of Japan's military strength. The Russian War Minister, Kuropatkin, states¹ that the Russian Staff calculated Japan's whole available force for land operations at only a little over 400,000 men, which would give no more than 200,000 men in the field. The force actually called up by Japan was 1,542,000 men, nearly four times what the Russian experts estimated. Miscalculations of this kind are deadly in war. It was upon such worthless assurances that the Russian Government relied when it rejected Japan's proposal for a Japanese protectorate in Korea, in exchange for which the Japanese Government was prepared to recognise Russia's special interests in Manchuria.

The British Government warned the Czar privately, through France, that Japan's forces by land and sea were efficient and powerful, but the warning was disregarded as an attempt to assist Japan by "bluff". Kuropatkin was strongly against a war in the Far East, believing it contrary to Russia's true interests, only unfortunately no one listened to him. He complained justly that instead of developing and strongly fortifying the naval bases of Port Arthur and Vladivostock, the Russian railway administration created at great cost an undefended port at Dalny,² and thus eventually presented the Japanese with a magnificent ready-made base.

On January 12, 1904, the Russian Government ordered Alexeieff to prepare for mobilisation and to put Port Arthur and Vladivostock in a state of defence. But on January 28 he was instructed not to oppose a Japanese landing in Korea, provided it were not effected north of Chemulpo. The object of this order was not so much to avoid as merely to postpone a collision and gain time for the Russian mobilisation. On February 3 the Russian Fleet at Port Arthur assembled outside that base, apparently ready for operations. This news reached Japan, where it caused great disquietude, and on the 4th, after a prolonged sitting, a council of ministers,

¹ *The Russian Army and the Japanese War*, i, p. 206.

² *Id.*, i, pp. 129-130.

"Elder Statesmen,"¹ and naval and military commanders decided to break off diplomatic relations on February 6, and to put the Japanese Fleet in motion, if Russia did not previously accept the Japanese proposals. The *Nisshin* and *Kasuga*, then at Singapore, were ordered without fail to leave that port on the 6th. They arrived safely at Yokosuka on February 16.

So far back as October, 1903, Vice-Admiral Togo had been appointed to command the main Japanese Fleet. He was fifty-seven years of age and in the war with China had distinguished himself, displaying energy and quickness of decision, as captain of the *Naniwa*. In his youth he had studied his profession in England and had undergone a period of training in the Worcester. He was a most capable leader, served by an excellent staff, and at the date of his appointment he enjoyed special prestige in the Japanese Navy from the high professional qualities which he had shown in command of the Japanese Permanent Squadron during the Boxer Campaign. In selecting him his government proved itself a remarkable judge of character. He was not a man who had ever blown his own trumpet; his modesty was as striking as his courage and determination; his judgment was rarely at fault. The Japanese Fleet under his orders was constantly exercised and kept in thorough readiness for war; as he had in January and February, 1904, to be ready to cover the *Nisshin* and *Kasuga*, should the Russian Fleet in the Far East detach any of its ships to seize them. He had with him the following force:

FIRST SQUADRON

BATTLESHIPS, 1ST DIVISION 6: *Mikasa* (flag), *Asahi*, *Fuji*, *Yashima*, *Shikishima*, *Hatsuse* (flag of Rear-Admiral Nashiba).

CRUISERS, 3RD DIVISION 4: *Chitose* (Rear-Admiral Dewa), *Takasago*, *Kasagi*, *Yoshino*.

DESPATCH BOAT . . . 1: *Tatsuta*.

DESTROYERS AND TORPEDO BOATS, 19:

1st Division, *Shirakumo*, *Asashiho*, *Kasumi*, *Akatsuki*.

2nd „ *Ikadzuchi*, *Oboro*, *Inadzuma*, *Akebono*.

3rd „ *Usugomo*, *Shinonome*, *Sazanami*.

1st T.B. Division, Nos. 69, 67, 68, 70.

14th „ „ *Chidori*, *Hayabusa*, *Manadzuru*, *Kasasagi*.

¹ Ex-Ministers in Japan with a great record of service to their country: they were generally consulted on vital issues of policy.

SECOND SQUADRON

ARMoured CRUISERS, 2ND DIVISION 6: *Idzumo* (Vice-Admiral Kamimura), *Adzuma*, *Asama*, *Yakumo*, *Tokiwa*, *Iwate* (flag of Rear-Admiral Mizu).

CRUISERS, 4TH DIVISION . . . 4: *Naniwa*¹ (Rear-Admiral Uriu), *Akashi*, *Takachiho*,¹ *Niitaka*.

DESPATCH BOAT: . . . 1: *Chihaya*.

DESTROYERS AND TORPEDO BOATS, 16:

4th Division, *Hayatori*, *Asagiri*, *Harusame*, *Murasame*.

5th „ *Murakumo*, *Shiranui*, *Yugiri*, *Kagero*.

9th T.B. Division, *Aotaka*, *Hato*, *Kari*, *Tsubame*.

20th „ „ Nos. 62, 63, 64, 65.

Besides these ships there was an independent Third Squadron of old vessels under Vice-Admiral Kataoka and an Auxiliary Squadron of armed merchant steamers, colliers, gunboats, mine layers, mine sweepers, repair ships and torpedo depôt ships. The fleet was a most formidable force, manned by thoroughly good seamen and commanded by skilled and determined officers, who ten years earlier had had much experience of naval war in the conflict with China. There were in Japan eleven large docks, capable of accommodating battleships or armoured cruisers, and besides large initial reserves of Welsh coal, there was an abundant supply of Japanese fuel, though this was of inferior quality.

The six battleships were typical vessels of that date, each mounting four 12-inch guns fore and aft in two barbettes with strong hoods, and from ten to fourteen 6-inch guns behind armour. They were protected on the waterline by thick steel belts with thinner plating above to some height above the water. They were well equipped in every respect and provided with good wireless installations, for at this date wireless had proved its invaluable qualities and was constantly used by the Japanese and in a less degree by the Russians. The six armoured cruisers in Kamimura's squadron were built in response to the fashion of that time; they were much more than a match for protected cruisers but were weak both in armour and gun power for encounter with battleships. Each carried four 8-inch guns (250-pound shell) mounted in two barbettes fore and aft, with twelve to

¹ These two ships since the war with China had been reconstructed and armed with eight 6-inch guns instead of two 10-inch and six 6-inch.



THE JAPANESE BATTLESHIP "HATSUSE"

She took a leading part in Togo's operations against Port Arthur and was repeatedly in action. She was destroyed by Russian mines which exploded her magazines and caused the loss of nearly 500 officers and men. A typical battleship of pre-Dreadnought era.

THE JAPANESE BATTLESHIP "YASHIMA"

Like the *Hatsuse*, fought in the earlier months of the war with Russia and was sunk by mines on the same date as the *Hatsuse*. [PLATE 14. p. 170]

fourteen 6-inch guns also behind armour. On the water-line they had belts of thin armour. They had trial speeds of 20 to 23 knots and in service could make 18 knots or more.

Of the protected cruisers the *Takasago*, *Chitose* and *Kasagi* mounted each two 8-inch guns (one fore and one aft) and ten 4.7-inch quick-firers; the *Yoshino* has already been described as she took part in the war with China, and though a comparatively old ship she was thoroughly efficient in 1904. The destroyers were new boats of British design, many of them built in England; they displaced 275 to 375 tons, steamed 30 to 31 knots, and carried, besides one 12-pounder (increased later in 1904 to two 12-pounders in view of war needs) and five 6-pounders apiece, two torpedo tubes, discharging 18-inch Whitehead torpedoes with 171 to 200 pounds of explosive in them, of which four were carried. The torpedo boats used the smaller 14-inch torpedo with a charge of 79 pounds. The extreme range of the latest torpedoes used in 1904 was about 3,000 yards. All the large Japanese ships carried heavy torpedo armaments which were of little service in the war, and never effected a hit. The weight devoted to them would better have been given to guns and ammunition, in the light of subsequent events.

Japanese opinion afterwards held that a mistake had been made in not building fast battleships in place of the armoured cruisers. Four fast ships of the type laid down in the war in the *Tsukuba* (20½ knots, four 12-inch and twelve 6-inch guns) would have been more valuable in the actual conditions of the conflict than the six vessels of the *Asama* type and would have cost no more. But that, perhaps, could not be foreseen. The Japanese ships had a high degree of uniformity and they represented the best technical judgment of the time. The absence of submarines will be noted. They were then in the experimental stage, and there were no aircraft. This was the last great war in two dimensions at sea and it marks the end of an age of naval development.

Nature had given Japan one signal advantage, the islands of her empire for more than 2,000 miles front the eastern coast of Asia in an almost unbroken chain, from the south of Formosa to the north of the Kuriles, providing her navy with a series of bases connected by telegraph. Along this chain of positions any enemy approaching from Europe would have to pass with the Japanese Navy on its flank. A Japanese fleet stationed in the Straits of Korea was able by steaming through the Inland Sea of Japan, the entrances to

which were defended, to attack a hostile fleet moving up the western or Pacific coast of the Japanese main group. The Japanese Navy had one further advantage over the Russian in that it had behind it a considerable merchant fleet, and foundries and works capable of executing any repairs necessary with great speed.

The Japanese plans provided for the movement of the main fleet to Port Arthur, to seek out the Russian Fleet and give battle to it. The advance of the fleet was to be preceded by the destroyers which were to deliver a torpedo attack, if one were practicable. To seize the Korean capital of Seoul, four battalions of infantry were ordered to embark at Sasebo without mobilising; they went on board three transports which were ready for them on February 6. Thus the intention of the Japanese was to take the offensive at the very outset with the maximum of force available and with the utmost vigour. They did not make the mistake of dividing their forces for the initial blow. Practically the whole modern fleet of Japan was to participate in it—Kamimura's squadron as well as Togo's. The Japanese Staff believed in the excellent French maxim: "No one has ever been defeated because he was too strong." It took immense pains to be superior at the two points where fighting was to be expected, and it disregarded the powerful Russian squadron at Vladivostock. Its alertness is specially to be noted. Not a moment was to be wasted.

The Russian force under the plan of campaign which Admiral Vitgeft regarded with such complacency, was scattered and divided. The main force was at Port Arthur and was lying outside the harbour after having made a short cruise in the Gulf of Korea. The fast cruiser *VARIAG* (launched 1899, 6,500 tons, twelve 6-inch and twelve 12-pounder quick-firers) and the sloop *KORIETZ* (launched 1886, 1,200 tons, two 8-inch and one 6-inch old type guns) were at Chemulpo in Korea. The object in keeping them there, close to Seoul, the Korean capital, was to influence the Korean Government against Japan. Four of the best cruisers, including three large armoured cruisers and seventeen torpedo boats, were at Vladivostock. Between this detached squadron and the main Russian fleet at Port Arthur lay the Japanese Fleet, holding the interior lines and able to move against either of the two Russian forces as it chose.

No effort had been made by the Russian Government to put the ablest naval officer it possessed in command of its

fleet in the Far East, though so much in war depends on personality. It had a capable and energetic officer in Vice-Admiral Makaroff, aged fifty-six, who was left to cool his heels in Russia as Port-Admiral at Kronstadt. The commander of the main fleet was Vice-Admiral Stark, aged fifty-eight, one of the amiable, inert, routine-dominated officers who so often come to the front in peace and are beloved by Admiralties because they never disturb people about them or above them. He was known in his service as a good seaman. Though seamanship is important, it is not everything in naval war, and there were critics a century and a quarter ago who declared that Nelson did not possess it.

In a semi-independent position 1,100 miles away at Vladivostock with the ships there was Rear-Admiral Baron Stakelberg. Stark's second in command in the Port Arthur fleet was Rear-Admiral Prince Ukhtomsky, who was regarded in his own service as a good second-rate officer. In supreme command of both the Russian Navy and Army in the Far East was Admiral Alexeieff, the Viceroy, aged sixty-one, who had spent his life in the Russian Navy, but at the critical moment was inert and negligent of the duties of the higher command.

The organisation of the Russian fleet was as follows:

Port Arthur: Vice-Admiral Stark, Commander-in-Chief.

Battleships. ... 7: PETROPAVLOSK (flag), TZESAREVITCH, RET-VISAN, SEVASTOPOL, PERESVIET, (flag of Rear-Admiral Prince Ukhtomsky), POBIEDA, POLTAVA.

Cruiser Division 6: ASKOLD (flag of Rear-Admiral Reitzenstein), BAYAN, DIANA, PALLADA, BOYARIN, NOVIK.

Torpedo Gunboats 2: VSADNIK, GAIDAMAK.

Destroyers. ... 25: BDITELNY, BEZPOSCHADNY, BEZSHUMNY, BEZSTRASHNY, BOEVOI, BOIKY, BURNY, GROZVOI, LIEUT. BURAKOFF, RASTOROPNY, RAZIASHCHY, RIESHITELNY, SERDITY, SILNY, SKORY, SMYELY, STATNY, STEREGUSHCHY, STOROJEVOI, STRASHNY, STROINY, VLASTNY, VNIMATELNY, VNUSHITELNY, VYNOSLIVY.

Mine-Layers. ... 2: AMUR, YENISEI.

Vladivostock: Rear-Admiral Baron Stakelberg.

Armoured Cruisers 3: GROMOBOI (flag), ROSSIA, RURIK.

Protected Cruisers 1: BOGATYR.

Torpedo Boats 17:

Both at Vladivostock and at Port Arthur there were various older ships of small size which were constantly used for inshore duties. At Port Arthur was only a single dock with 32 feet of water¹ on the sill, too short for the largest Russian battleships and armoured cruisers; and at Vladivostock another and longer dock, which would accommodate them. Of coal the Russians had considerable supplies at these two bases and they could also draw fuel of a somewhat inferior quality from the Yentai mines which were in railway communication with Port Arthur.

The Russian battleships were generally contemporary in date with their Japanese opposite numbers. The first four and the last carried each four 12-inch guns mounted in pairs in turrets fore and aft with twelve 6-inch quick-firers, all behind fair armour; and on the water-line they had steel armour belts. Their speed in service was 14 to 15 knots. The PERESVIET and POBIEDA had less protection and lighter armaments—10-inch guns in place of 12-inch guns, and eleven 6-inch quick-firing guns in place of twelve of that calibre. The Russian ships were not like the Spanish ships in the war of 1898 or the Chinese ships in the war of 1894-5, markedly inferior to their antagonists, though the Japanese had the better types. The only armoured cruiser at Port Arthur was the BAYAN which was distinctly inferior in gun-power to the Japanese *Asama* class. The protected cruisers were good vessels of their kind; and the destroyers were modern, if weaker in gun-armament than the Japanese vessels of their class, and of much the same size. They had trial speeds of 26 or 27 knots.

The big armoured cruisers at Vladivostock, with the exception of the GROMOBOI, lacked protection for their guns, which were so badly mounted that their broadsides were markedly inferior to those of the smaller Japanese armoured cruisers. Each of them carried four 8-inch and sixteen 6-inch quick-firers with a broadside of two 8-inch and six to eight 6-inch. The BOGATYR was an exceptionally good and fast protected cruiser, able to steam 22 or 23 knots with a broadside of eight 6-inch quick-firer guns. The total of Russian armoured ships of modern type was eleven against the Japanese fourteen (including the *Nisshin* and *Kasuga*). The total broadside of the two armoured fleets, if concentrated, was: Russians, twenty 12-inch; eight 10-inch; ten 8-inch, sixty-five 6-inch; and Japanese, twenty-four 12-inch, one 10-inch, thirty

¹At high-water springs: the damaged battleships could not be got into it.

8-inch, ninety-two 6-inch. The Japanese had thus an advantage in the number of armoured ships and a marked advantage in weight of broadside (with common shell about 37,600 pounds for the Japanese against 26,500 pounds for the Russians). The advantage was increased by the Japanese use of high explosive in their heavy projectiles; this the Russians entirely lacked and the powder bursting charges of their shells were small.

The choice of Port Arthur as the Russian point of concentration was a mistake, because of the difficult hydrographic conditions. There is only one exit and that a narrow one; the harbour itself is much too small for a considerable fleet; moreover if the Japanese did achieve what Vitgeft had declared "impossible," and did defeat the Russian fleet, they could without any immoderate difficulty cut Port Arthur off, with the help of a land expedition. At Vladivostock the Russian Fleet would have had at its disposal an immense harbour from which there are several exits; and though that base was situated on a long peninsula, a fleet there was not so much exposed to the risk of being cut off by land attack, because of the bleak, rugged and difficult character of the coast in the neighbourhood.

No doubt its operations would sooner or later have been controlled by the Japanese Fleet operating in the Japan Sea; but they would not have been so easily controlled as when Port Arthur was made the principal Russian base. Indeed the Japanese Navy Department stated during the war that in its view "naval operations [by the Japanese Fleet] off Vladivostock were practically impossible." On the other hand, a fleet at Vladivostock would be hampered by fogs and ice and it could not have prevented the Japanese from landing in the Gulf of Korea. The Japanese would have found it hard to blockade Vladivostock—and Togo's chief fear was always that the Port Arthur fleet would escape thither—but they could have kept their main fleet ready in the Straits of Korea, and there would have been prepared to deal with any Russian movement. One of the many defects of Port Arthur was the fact that it was so deeply embayed; a relief force or reinforcements approaching from Europe could with ease be intercepted by the Japanese, operating from their bases on the Straits of Korea.

On February 8, 1904, a military council was held in St. Petersburg, in which the risk of a Japanese attack on the Russian Fleet was considered. The Russian Military

Attaché at Tokio had already pointed out that the Japanese ultimatum meant war, and that operations were to be expected immediately. After the council the Czar telegraphed to Alexeieff instructions that the Japanese were to be allowed to open hostilities as it was not desirable that Russia should attack. If they landed troops in Korea south of 38 degrees north latitude,¹ the Russians were to offer no opposition, provided the Japanese did not attack. If they came north of 38 degrees the Russians were to attack without waiting for the Japanese to fire first.

These instructions, given much too late, directed a purely passive attitude. But they did not completely tie Alexeieff's hands. The least he ought to have done was to order the extremest vigilance on the part of the fleet. Though present himself in Port Arthur, and therefore aware of the danger, he only ordered the military garrison to be on the watch, and would not allow Stark to take precautions against a sudden attack. Stark on his part yielded without a struggle to Alexeieff and issued a most dangerous order to the VARIAG and KORIETZ at Chemulpo, telling them on no account to leave that port without further instructions—which never reached them. He asked Alexeieff for permission to put his fleet in condition to meet an attack, and was told that this was "premature." A strong admiral would have acted without asking.

On February 8, however, he appears to have made the signal "Prepare to repel torpedo attacks." This was taken in some of the ships as a mere manœuvre; torpedo nets, carried at that date by all large ships, were not got out, nor were the heavy guns loaded. Two ships were told off for searchlight duty, and two destroyers were ordered to steam twenty miles to sea, scout, and if they observed anything suspicious, return and report to the admiral. Nothing could have been better calculated to assist an alert assailant.

¹ That is to say no opposition was to be offered to troops landing at Chemulpo or a little north of that place, in accordance with the previous decision.

CHAPTER X

The Japanese Fleet Puts to Sea—"Asama" Engages "Variag"—"Variag" Sunk—Torpedo Attack on the Port Arthur Fleet—Three Russian Ships Disabled—Dewa Reconnoitres Port Arthur—Togo's Long Range Attack—Casualties and Damage—Attempt to Block Port Arthur Fails—Makaroff Takes Over the Russian Command—His Activity.

IN single line ahead, squadron after squadron at considerable intervals, the Japanese Fleet steamed out from Sasebo amidst extraordinary enthusiasm, and concentrated in the afternoon of February 7 at a rendezvous off the south-west of Korea. Rear-Admiral Uriu was there detached with the 4th Division, reinforced by the powerful armoured cruiser *Asama* and the 9th and 14th Torpedo Boat Divisions, to deal with the Russian ships at Chemulpo and cover the three transports which were to land their troops. He was thus given overwhelming strength against the *VARIAG* and *KORIETZ*, a wise proceeding, as this was to be the first engagement between modern Japan and a white adversary. On the way to Chemulpo the *Takachiho* rammed a huge whale which was taken by all as an omen of victory.

Soon after daybreak of February 8, Uriu was off the archipelago west of Chemulpo and there the *Chiyoda* met him. She had been in Chemulpo watching the Russians till the previous night, when with all possible circumspection she weighed and put to sea with the report that they were still in the harbour. The *Chiyoda* and *Takachiho* were sent forward by Uriu in advance, with the 9th Torpedo Division to cover the landing of troops which was to take place immediately. Behind came the *Asama* and the other vessels.

At about 4.30 p.m. as the Japanese vessels entered the long inlet, they saw the *KORIETZ* coming out, on her way to Port Arthur with despatches. She attempted to pass to port of the two leading Japanese cruisers, but observing that they kept their guns trained on her and that the torpedo boats were ready to attack, she turned to go back to her moorings

but not before the torpedo boats had fired two torpedoes at her, to which she replied without effect from one of her guns at 4.40 p.m. of February 8. The Japanese did not further molest her. They sent in their transports covered by the *Chiyoda*, *Takachiho* and the 9th Torpedo Boat Division. The *Asama*, clear for action, lay near the Russian ships, but well outside torpedo range.

During the night the Japanese troops disembarked and left by rail to seize Seoul. The Russian warships looked on, paralysed by the order not to attack or oppose a landing south of 38 degrees, and at 6 a.m. of February 9 the Japanese warships and transports left the harbour, only the *Chiyoda* remaining till 9 a.m. to deliver certain important letters from Uriu. The first, addressed to the commanders of the neutral warships present, informed them that war had begun between Russia and Japan, asked them to move their vessels to a safer position, and stated that the Russian ships would be attacked if they did not leave by noon. The senior neutral officer, Captain L. Bayly, of the British cruiser *Talbot*, does not seem to have understood the political position or the real situation in Korea, as he forwarded a protest to Uriu against the proposed violation of Korean neutrality. With this protest, Commander E. B. Barry, of the United States gunboat *Vicksburg*, refused to have anything to do. The failure of the British Admiralty, probably because of the want of a staff, to orientate its commanders as to their duties towards the British Ally, Japan, was the cause of this error of judgment on Captain Bayly's part. Uriu paid no attention to the protest. The second letter was sent by the Japanese consul to Captain Rudneff of the *VARIAG*, and told him that if he did not come out he would be attacked.

Rudneff, who was a gallant officer, had been placed in a hopeless position by the errors of his superiors. He decided to go out, though the *VARIAG*'s speed, owing to the state of her boilers, was only 14 knots, and there was no chance of escape. The *KORIETZ*'s commander also decided to leave the port, and about noon he weighed and stood towards the Japanese squadron, which lay some distance west of the harbour in line. The *Asama* was easternmost, with in order from east to west astern of her the *Chiyoda*, *Naniwa*, *Niitaka*, *Takachiho* and *Akashi*. Three torpedo boats of the 14th Division were to leeward of the Japanese cruisers.

The *VARIAG* followed the *KORIETZ* and soon outstripped that small vessel which, in the approaching action, did little

more than demonstrate by firing several rounds from her old guns quite ineffectively. On the Japanese side the *Asama* did most of the fighting, attacking the *VARIAG*, while the *Chiyoda* fired at the *KORIETZ*, and the other Japanese vessels from time to time joined in, when their guns would bear. The *Asama's* crew had all the confidence which good armour protection gives. The Russian ships had no protection other than gun shields, and the *VARIAG's* armoured deck. In broadside power the Russians were at a signal disadvantage against the *Asama* alone:

	8-in.	6-in.	12-pdr.	Weight of Metal.	Casualties
Russian Ships	1	7	6	922 lb.	222
<i>Asama</i>	4	7	6	1772 „	0

The Russian 8-inch gun in the *KORIETZ* was of such ancient type and such short range that it was of no value.

At 12.20 (Japanese time) p.m. of February 9 the *Asama* opened fire with her 8-inch guns at 7,700 yards, bringing her broadside to bear, and began to hit with the third shot which shattered the *VARIAG's* upper bridge, set the charthouse on fire, and killed a junior officer and four seamen. Both Russian ships replied but the *KORIETZ* speedily stopped her fire as her shells fell short, and returned to the harbour. The *VARIAG's* shooting was poor and her projectiles uniformly missed the *Asama*. The Japanese fire grew in precision as the ships slightly closed, and clouds of smoke rose from the *VARIAG*. After about fifteen minutes of firing, during which the *Asama* had not been struck once, thus verifying the principle that a deadly fire on the enemy is the best possible protection for a crew, she had destroyed the fighting capacity of the *VARIAG*. Five 6-inch and nine smaller guns in this ship were put out of action; both range-finding stations were wrecked; the leads of the steering engine were shot away; and a shell bursting near the foremast wounded Captain Rudneff, killed 2 men at his side, and wounded many others; another shell put two more 6-inch guns near the conning tower out of action. The *VARIAG* had to be steered with her engines. She was enveloped in steam and smoke and the other Japanese cruisers were now firing at her as the range had dropped, so that a veritable storm of projectiles splashed about her.

To escape this punishment and put out the fires, Captain Rudneff attempted to reach shelter behind Yodolmi Island, which rises over 200 feet from the water. Owing to the

breakdown of his steering gear he all but ran his ship aground, and had to go astern with his engines, while the Japanese were coming up behind him. At this moment the *VARIAG* was hit by a heavy shell on the port side, two feet above the water-line. The hole was a large one and through it water poured, filling one of the stokeholds and giving the *VARIAG* a marked list to port. In danger of sinking she made for Chemulpo harbour, with the *Asama* following her and firing at her, but at 1.15 p.m., from risk of hitting the neutral ships which were in line with the Russian cruiser, the *Asama* suspended her fire and her pursuit, and anchored and waited till 4 p.m. to complete her work.

The *VARIAG* and *KORIETZ* both anchored off Chemulpo, the *KORIETZ* untouched by the Japanese fire and without any casualties. The *VARIAG* was much shattered. Ten of her twelve 6-inch guns, all her 12-pounders, and all her 3-pounders were out of action, though it does not appear that all had been disabled by the Japanese fire. Below the water-line or on it she had four bad hits. Her upper works and ventilators were riddled, and her men had put out at least four serious fires. Of her crew with a nominal strength of 580, 31 were killed, 91 severely, and over 100 slightly wounded, giving a total loss in excess of 222.

Yet the actual number of hits, when the vessel was afterwards carefully examined, proved to be only three 8-inch and eight 6-inch or 4.7-inch in addition to very numerous hits from fragments of shells which burst on striking the water and caused her considerable loss. The deadliness of fire with high explosive projectiles against a protected cruiser was thus illustrated. The Japanese fired twenty-eight 8-inch and 248 6-inch and 4.7-inch shells, so that their percentage of hits with the 8-inch weapon was a little under eleven, and with the smaller guns slightly over three. The good percentage of hits with the heavy 8-inch gun was in accord with United States' experience at Manila and Santiago. The *VARIAG* fired 425 6-inch, 470 12-pounder and 210 3-pounder shell, and made no hits at all, an astoundingly bad performance. The *KORIETZ* fired forty-nine rounds from her heavy guns (8-inch and 6-inch) also without a hit. It should be noted that this action was one in which a vessel of inferior class was overpowered by one of superior class and in this respect it resembled Sinope, Santiago and the Falklands.

Both the *VARIAG* and the *KORIETZ* were sunk by their crews after the action to avoid another Japanese attack. The

VARIAG's crew was transferred to neutral ships and subsequently interned or sent back to Russia on giving parole, but the Vicksburg declined to take any part in thus removing combatants from the reach of the Japanese. A Russian steamer in the port, the SUNGARI, was also sunk to prevent her from falling into the hands of the Japanese.

The Russians fought gallantly and it was not Captain Rudneff's fault that he was so disastrously inferior in force. The folly of making weak detachments and leaving them unsupported when relations are critical was the lesson of this encounter. The Japanese did their work well and quickly; they made no mistakes, and were above all wise in taking care to have an enormous superiority for the first engagement of the war. The VARIAG was refloated in 1905 and was subsequently reconstructed and added to the Japanese Navy.

That same morning events of immense importance had taken place at Port Arthur. In the evening of February 8 the Russian Fleet was at anchor outside that harbour in three lines running from east to west, the inmost of five battleships, the middle line headed by the TZESAREVITCH and RETVISAN battleships, followed by three cruisers to the west; the outer line of four cruisers headed by the PALLADA which was easternmost. Most of the destroyers were in the harbour; of the ships outside some were coaling. The powerful batteries ashore were quite unready for action; the guns were coated with grease for the winter and the recoil cylinders of the five 45-calibre 10-inch weapons on Electric Cliff, the best guns in the defences, were not filled. The destroyers RAZTOROPNY and BEZSTRASHNY were scouting seawards; otherwise, as the result of Stark's feebleness and Admiral Alexeieff's fatuous orders, both fleet and fortress were ill-prepared to meet attack.¹

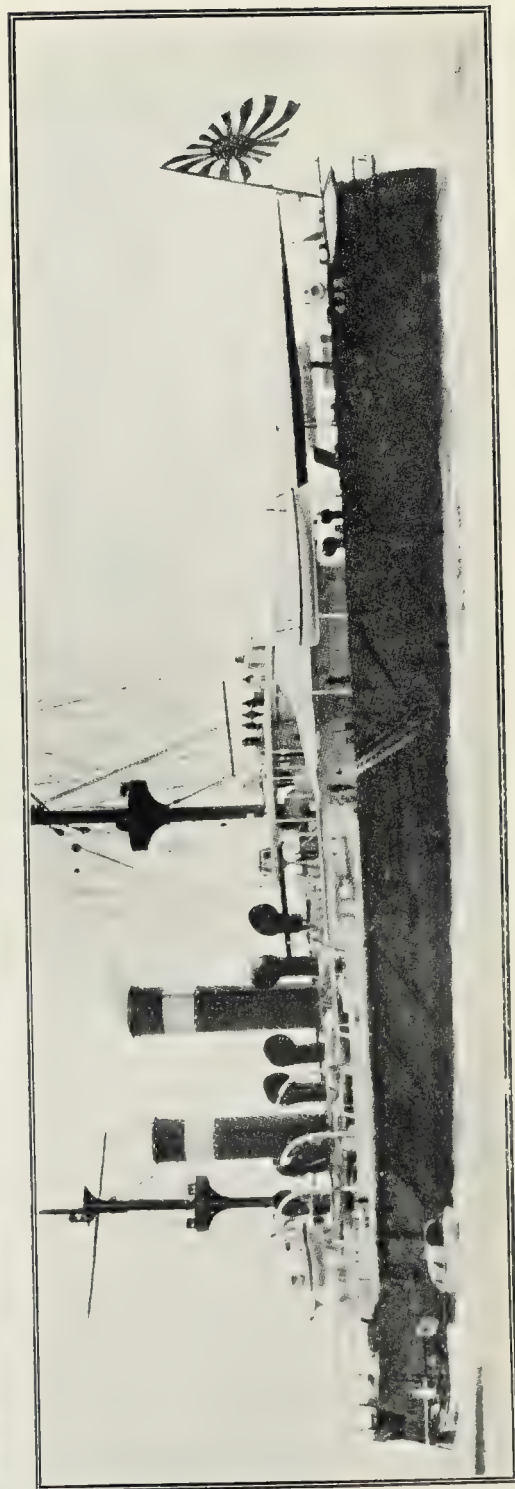
Togo, after detaching Uriu to deal with the VARIAG, led his main force, consisting of the six battleships, five armoured cruisers, four fast protected cruisers, and the 1st, 2nd, 3rd, 4th and 5th Destroyer Divisions towards Port Arthur, capturing on the way the Russian steamer ARGUN. To guard the Straits of Korea a force of old ships and torpedo craft was left under Vice-Admiral Kataoka, whose command was independent of Togo. The destroyer *Akebono* on the run west collided with an auxiliary vessel, and sustained enough damage

¹The tales told at the time that most of the senior officers were ashore, at an entertainment given by Admiral Stark, seem not to be true. One version is given in *Seckrieg*, I, p. 32.

to prevent her from taking part in the intended attack on the Russian Fleet. In accordance with orders which had previously been drawn up, the 1st, 2nd and 3rd Destroyer Divisions, now only ten boats strong, proceeded towards Port Arthur. The other two divisions headed for Dalny to attack the warships which were supposed to be there. The Japanese had received information from Chefoo on February 5 that three of the Russian ships had proceeded to an unknown destination, but a later report threw doubt on this. In actual fact there were no Russian warships at Dalny, and the force sent to that point was wasted. But that could not be known beforehand; it was a reasonable supposition that some part of the Russian Fleet would be at Dalny, and a sound plan of action had to calculate on this.

At 10.30 p.m. (Japanese time) the glare of Russian searchlights at Port Arthur could be seen and twenty minutes later two vessels were sighted. They were two Russian destroyers which saw the Japanese and at first took them for Russian boats. When the mistake was detected, the Russians, in consequence of their orders, did not venture to open fire. The Japanese turned away from them and extinguished the screened lights astern which were carried for station-keeping. It was a very dark and cloudy night and the attacking flotillas at this point fell into some disorder. The *Oboro* ran into the *Ikadzuchi* and damaged her own bow so much that she lost her speed and had to drop out of the formation, while the *Inadzuma* in the same division lost contact with her leader. The 3rd Division got out of touch with the other boats, so that the destroyers available, which had now fallen to nine in number, delivered their attacks separately and disjointedly. At 11.8 p.m. the 1st Division could make out the Russian Fleet and saw that its searchlights were working. The Japanese slowed and waited. At 12.20 a.m. of the 9th, as the searchlights now showed only intermittently and the moon had not yet risen, the 1st Division attacked, turning to port and running from east to west along the Russian line, while each of the four boats fired two torpedoes, and then turned away and disappeared in the darkness. Only when the first torpedoes had been fired at 12.28 a.m. and were exploding were the Russians certain that the destroyers were hostile; they had been mistaken by the ships at first for the two Russian boats which were cruising outside the anchorage, and not till then did the searchlights come on.

Of the eight torpedoes discharged the Japanese saw three



THE JAPANESE LIGHT CRUISER "TAKASAGO"
 She played a great part with the "greyhound" squadron of fast Japanese cruisers till she was mined in Dec., 1914, off Port Arthur—the last large Japanese ship lost in the war with Russia. [see p. 227]

THE JAPANESE ARMoured CRUISERS "ASAMA"
 This was one of a group of six almost identical armoured cruisers, which rendered signal service in the war with Russia. She fired on the broadside four 8-inch and seven 6-inch guns. [PLATE 15. p. 182]

explode on striking ships. The range appears to have been rather above than under 800 yards, though the Japanese intention was to close to 500. Immediately after the 1st Division came the attack of the 2nd, which had shrunk to a single boat, the *Ikadzuchi*. She fired one torpedo and turned to the south. The Russian fire had become violent, but all the projectiles from the ships passed over the Japanese boats. The 3rd Division, seeing the glare of searchlights and the flash of guns, steamed towards the scene of action and was joined by the *Inadzuma*, which had lost contact with her own 2nd Division and took the place of the *Sazanami* in the 3rd. The latter boat had missed her Division in the confusion and darkness. The three destroyers of the 3rd Division passed along the Russian outer line from east to west and fired six torpedoes before turning away. Their attack was over at 12.45 a.m. Some time later when the other boats had vanished, came the *Sazanami* by herself, and at 1.25 a.m. fired two more torpedoes into the Russian Fleet. Last of all, quite isolated, the damaged *Oboro* reached Port Arthur at 1.45 a.m., fired one torpedo at the BAYAN, and retreated untouched.

Astonishing as it may sound, the Japanese boats which took part in this most daring attack sustained no loss or damage whatever. But because their attacks were not delivered simultaneously, they lost greatly in effectiveness. Most of the Russian officers agree that had the whole Japanese destroyer force assailed the Russian Fleet in one body, the fleet would have suffered a great disaster. Possibly the reason why the Japanese did not plan such an attack with the nineteen destroyers which they could have employed was that their previous experience in manœuvres and exercises had shown that, with a large number of destroyers, confusion and collisions in the flotillas were to be feared.¹ A very high degree of training and seamanship would be required to handle such a mass of small fast craft, but the fact remains that the Japanese were well-trained and thorough seamen. They had a great chance; never was a torpedo attack delivered in such favourable conditions; but the opportunity was not utilised so completely as might have been expected in view of the immense importance of a signal success.

Yet the actual results obtained were serious enough for the Russians. The cruiser PALLADA and the battleships

¹ That the danger was real British experience in the destroyers during the night fighting at Jutland showed.

TZESAREVITCH and RETVISAN¹ were struck by torpedoes on the port side. The PALLADA's wound was amidships, abreast of a coal bunker, and though extensive did not endanger the ship. The RETVISAN's hit was forward and tore a great hole which measured 220 square feet. The TZESAREVITCH was hit aft, flooding her steering compartment and shattering her armour deck, but though the explosion was abreast of a magazine, the charges in the magazine were not detonated. The damaged ships forthwith attempted to enter the harbour, when the RETVISAN and TZESAREVITCH grounded at the entrance, barring the passage for large ships, and could not be got off. The PALLADA grounded on the west side of the entrance. Meanwhile the Russian cruiser NOVIK had got up steam and stood out to sea in pursuit of the Japanese destroyers. She saw nothing of them and quickly returned.

The Japanese had thus with eighteen torpedoes made three hits and had temporarily damaged and put out of action three ships. The injury inflicted by the torpedoes was much less than might have been expected, but the Japanese were distinctly unlucky. They were probably blinded by the glare of the searchlights and almost certainly they underestimated the distance when they fired, and thus they failed to make the attack a decisive one. It was speedily proved that a ship damaged near a harbour can nearly always be repaired; and the Japanese belief at the time that the three Russian ships hit were permanently out of action was not verified by events. The Russian casualties as reported by Alexeieff were 2 killed, 29 drowned, and 8 severely wounded. But the moral effect of the onslaught on the Russian Fleet was grave. Confidence had vanished; officers and men knew that by gross mismanagement and neglect of precaution on the part of Alexeieff and Stark they had been completely surprised. Such was the depression that, according to Alexeieff and other Russian naval officers, had the Japanese at daylight attacked in real earnest and had it been possible for them to land a division, Port Arthur would have fallen.

The Japanese destroyers returned to their base on the Korean coast without informing Togo of the exact result of their attack, so far as they could ascertain it. In the light of events this was a mistake. One of the good Japanese cruisers with powerful wireless could have kept touch with the flotilla and transmitted the information it brought to the

¹ Stenzel (v, p. 315) states that two torpedoes hit the RETVISAN but this is an error.

Japanese commander.¹ The impression among the Japanese torpedo officers was that the confusion and disorder in the Russian Fleet were extreme, so that everything was to be gained by a bold, determined attack on the part of the Japanese armoured ships, when they arrived. No time ought to have been lost; the swifter the attack the greater the prospect of decisive results. Before daylight arrived Togo sent on the fast cruiser division under Dewa to be off Port Arthur and reconnoitre it at 8 a.m., and himself steamed towards Encounter Rock, twenty-one miles south-east of Port Arthur, with the six battleships and five armoured cruisers. Dewa approached close to the anchorage of Port Arthur without being fired on, and made out three ships with heavy list lying close to the entrance. His appearance gave the batteries and ships warning that a fresh onset was impending, and about this time the heavy guns at Electric Cliff were got ready for action. Had Nelson's motto, "lose not an hour," been observed by the Japanese, Togo's fleet might have closed before these powerful long-range weapons could have been fired.

Dewa reported with admirable judgment: "The greater part of the enemy's fleet is in the anchorage; I have closed to 7,700 yards, without any firing. Several enemy ships seem to have been damaged by our torpedoes. I hold it would be advantageous to attack the enemy." About the same time one of his fast cruisers seized the Russian steamer MONGOLIA, which, in apparent ignorance that war had begun, was nearing Port Arthur.

At 11 a.m. of February 9 (Japanese time) Togo increased speed and led his fleet to Port Arthur, signalling that he intended to attack the enemy's main fleet. Three hours of daylight had, however, been lost; during those three hours the Russian Admiral Stark was ashore, conferring with Alexeieff, and an early attack would have found the Russians without their commander-in-chief. But when the Russian cruisers reported that the Japanese main force was approaching, the Russian Chief of Staff on his own responsibility very wisely ordered the fleet to weigh and form single line ahead. The three damaged vessels were still aground near the entrance and it was impossible for any of the Russian battleships to get past them, so that no course remained except to fight under shelter of the batteries. The Russians were still in considerable disorder when the Japanese heavy ships

¹ Probably this was not done to avoid the risk of mistakes in the darkness.

sighted them. There was a slight mist veiling the coast, but the wind was light and the sea smooth. Togo took his place on the *Mikasa's* forebridge; the Japanese ships hoisted their great battle-flags; and the signal went up: "The issue of victory or defeat depends on this first battle; let every man do his duty." He led his eleven ships in single line ahead towards the Russians, and at 11.55 a.m. at a distance of over 9,000 yards the fore-turret of his ship fired the first shot with a 12-inch gun. As the note of the gun rang out the Russian ships and batteries opened.

Steaming past the Russians from east to west, Togo's ships delivered a slow, carefully directed fire on the hostile fleet. The range diminished somewhat so that the 6-inch guns and 12-pounders came into action. The *Asahi* fired at the PERESVIET; the *Fuji* and *Yashima* made the BAYAN their target; the other Japanese battleships fired chiefly at Russian battleships. As the Japanese ships came in line with the southern promontory of the Kwangtung peninsula they turned to port, southwards, the protected cruisers under Dewa keeping out of dangerous range from the forts, but shelling the Russian Fleet with their powerful quick-firer batteries. Of the Russian ships only three showed any inclination to come out. They were the BAYAN, ASKOLD and NOVIK, and the BAYAN and ASKOLD did not move far. The NOVIK on the contrary steamed boldly towards the Japanese, closed to about 3,500 yards and fired a torpedo which missed.

The defilade of the Japanese Fleet past the Russian ships was over in about fifty minutes, when the Japanese passed out of range and both sides ceased fire. The Japanese sustained a number of hits from heavy projectiles, most of them apparently from the long-range guns on Electric Cliff. At 12.11 a Russian 10-inch shell struck the *Mikasa* and exploded just under the mainmast, wounding seven officers and men on the after-bridge. Another brought down the great Japanese battle-flag, and when the flag was hoisted again, a third shot tore off a large part of it. The *Fuji* was struck on the forward bridge by a shell from the batteries which killed her gunnery officer and wounded 4 men, and then exploded in the fore-funnel which it shattered, killing another officer and wounding 5 men. A 12-pounder projectile entered the after-conning tower and rebounding from its armour wounded an officer and destroyed the wireless apparatus.

The *Hatsuse* was twice hit and lost 7 killed and 9 wounded. The *Shikishima* was struck by a 6-inch shell which exploded

in her forward funnel and wounded 17 officers and men. The *Adzuma* had her battle-flag shot away; the *Iwate* was hit in her stern battery and had 10 wounded. The *Yakumo* was struck near her forward range-finder and an officer at it was wounded. Of the protected cruisers, the *Takasago* was struck by splinters from a Russian 12-inch shell which exploded as it touched the water short of her and did her some slight damage. The total loss returned by the Japanese ships was 53. The *Asahi* and *Yashima* had no hits at all to record, among the armoured ships. The damage done was quite insignificant and did not in any respect affect the fighting qualities of the ships.

In the Russian Fleet the loss was heavier and the injuries severer, but none of Stark's battleships or cruisers were put out of action. The *NOVIK* suffered the most; she was attacked by the powerful Japanese armoured cruiser *Yakumo* which hit her amidships with an 8-inch shell, and she was also subjected to a heavy fire from other of the Japanese armoured ships. That she escaped destruction is not a little surprising. The *ASKOLD* was attacked by the *Iwate* and *Tokiwa*; the *BAYAN* was fired at by most of the Japanese vessels and had fifteen hits; and the *DIANA* was a good deal knocked about. All had been hit on or below the water-line. The *POBIEDA* was hit fifteen times, but for the most part on her armour, which was not perforated. The *PERESVIET* had three hits. The *PETROPAVLOSK* was hit on her plating abreast of her fore funnel, and the *POLTAVA* was struck on the bow. The Russian casualties were 21 killed and 101 wounded in the ships and 1 killed and 4 wounded in the forts, while a few civilians were wounded in the town.

A close and determined attack delivered by such gunners and such seamen as the Japanese, who could and did face severe losses unshaken, would certainly have annihilated the Russian Fleet and ended the naval war by one triumphant stroke, had the attack been begun at daybreak. The one effective battery, of five 10-inch guns on Electric Cliff, would then have been unable to fire and the old Russian 11-inch howitzers were not better prepared. "The boldest measures are the safest," Nelson had said. Togo was not, like Admiral Sampson in the war with Spain, held back by orders from his government, forbidding him to risk his ships. He had full authority and discretion to use them as he thought best.¹ His decision was governed by the fact that the Japanese Navy

¹ Official Japanese information.

had to encounter an adversary at sea of approximately twice its own strength—for in addition to the Russian Fleet on the spot in the Far East, there were numerous Russian ships in Europe which might sooner or later have to be met in battle. Togo's plan was to defeat the Russians in detail, and to avoid any unnecessary risk. He would not have hesitated to challenge the Russians in battle if he had been able to deal with them on the open sea. But he did hesitate when he found them under the protection of land batteries which, from all the information at his disposal, would be extremely formidable.

In the light of after-knowledge and later events, if the Japanese had felt strong enough to attack, an easy victory awaited them, and they would have been saved stupendous efforts and fearful sacrifices. The *Hatsuse* and *Yashima* would not have been lost; the long and terrible drama of the assaults on Port Arthur and 203-Metre Hill with their grievous bloodshed, would have been averted; and Nogi's army would have been available at the battle of Liaoyang. But throughout the war Togo had to employ his fleet with an eye to an ulterior object of the first importance, covering the disembarkation and communications of the Japanese Army. And though history shows that the ideal way of securing such an object is by destroying as quickly as possible the organised force of the enemy, in actual operations the ideal plan has often to be sacrificed in view of practical difficulties.

Immediately after the surprise at Port Arthur the Russian Government did what it ought to have done before the war—it appointed its ablest officer—Vice-Admiral Makaroff—to command in the Far East. He could not arrive till March 8, and he brought with him a number of skilled naval constructors and artisans. Meantime on February 9 the *NOVIK* was docked for repairs, and both the *PALLADA* and *TZESAREVITCH* were towed off the shoals and taken into the harbour. The *RETVISAN* was still aground but it was possible to get past her, if with difficulty. The rest of the Russian Fleet remained outside and its cruisers and destroyers scouted to some distance.

On February 11 the Russian mine-layer *YENISEI* struck one of her own mines while she was laying a field in Talien Bay and went down in twenty minutes with the loss of 93 officers and men. Her crew behaved with signal gallantry. The light cruiser *BOYARIN* with four Russian destroyers, having gone out to deal with Japanese destroyers which were sup-

posed to have sunk the YENISEI, herself struck a drifting mine off Talien Bay and was so damaged that she became a total loss. During the next few days the Russians laid great mine-fields off the Kwangtung peninsula, though the neighbourhood of Port Arthur was left clear.

A second torpedo attack was made by the Japanese with the four boats of the 4th Destroyer Division in the night of February 13-14. The weather was so bad that only two of the four reached Port Arthur. These approached separately and fired torpedoes without any result. Of the big Russian ships the RETVISAN alone was outside: she was still aground at the entrance. The Russian destroyers were scouting off the port, but the Japanese suffered no damage or loss. On February 14 Togo learnt that the transport of Japanese troops in force to Chemulpo in Korea was beginning, and to cover it determined to strike again at Port Arthur. Five blockships, which were old merchant steamers specially prepared, were to attempt to block the entrance, precisely as Hobson had attempted with the Merrimac to shut Cervera in at Santiago; after which Togo meant to carry out a long-range bombardment.

In the night of February 23-24 the blocking operation was essayed. It was preceded at 1.50 a.m. of the 24th by an attack delivered by the 5th Destroyer Division on the Russian vessels outside the harbour—the RETVISAN and some of the Russian destroyers. No damage was done. At 4.15 a.m. the blockships in line ahead steamed northwards under the shadow of the 1,500-foot mountains of Laotishan, but they were seen at once by the Russians and the half-dozen searchlights ashore picked them up and blinded the navigating officers. Three of the five went aground three miles south of Port Arthur. The other two were most gallantly handled but were not more successful; one of them, repeatedly hit, grounded at the west entrance to the harbour without blocking it, and the other struck some object to the east of the entrance and was then destroyed. The 14th and 9th Torpedo Divisions under a violent fire picked up all the survivors who could be reached in a heavy sea; the loss of life seems to have been small despite the magnificent bravery displayed by the Japanese and only 10 officers and men of the 77 engaged perished.

The Japanese failure was due to the blinding effects of the hostile searchlights and the heavy and fairly accurate Russian fire. Two of the blockships had their steering gear put out

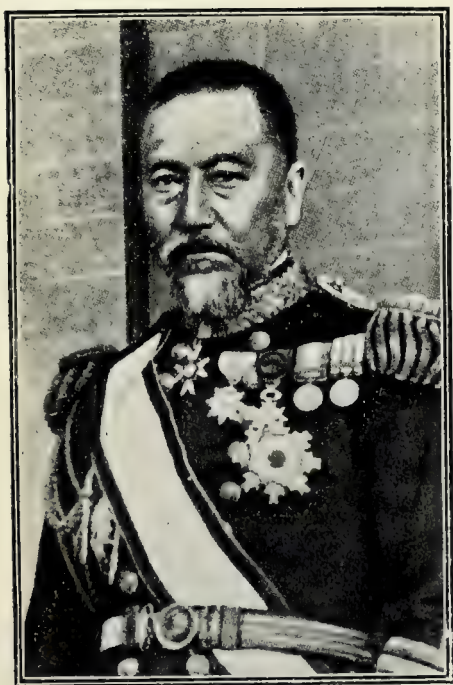
of action and one had the leads to the explosive charges destroyed by hostile projectiles. The RETVISAN's guns were particularly effective at close range. The conditions were then totally different from those at Santiago, and more closely resembled those at Zeebrugge which remains the model of a skilfully organised and gallantly conducted blocking enterprise. With a reasonably alert garrison and squadron, however, the blocking of a naval base is an extraordinarily difficult operation.

In the morning of the 25th, Dewa's four fast cruisers caught the BAYAN, ASKOLD and NOVIK some distance out from Port Arthur and almost cut them off. At 11.31 a.m. the Japanese armoured ships in line ahead arrived off the port and opened at extreme range¹ on these cruisers and the RETVISAN. The Japanese closed slowly, and then shelled the interior of the harbour with indirect fire. A considerable number of hits was made; the ASKOLD was struck by a 12-inch shell which put two guns out of action; and the BAYAN was slightly damaged. The Russian Fleet had 22 men severely and 41 men slightly wounded, and in the batteries and town 3 were killed and 18 wounded. The Japanese had no loss. They cut off and sank in Pigeon Bay the Russian destroyer VNUSHITELNY, which had one of her crew killed. The rest of her men escaped ashore. On March 4 two Russian destroyers ran ashore in a snowstorm and though they were got off, sustained a good deal of damage.

In these operations Togo used an advance base in southwest Korea, where colliers, supply ships and repair ships were assembled. It was well placed strategically, less than 400 miles from Port Arthur and on the flank of the sea routes leading to that place. Extreme secrecy was maintained about the dispositions of the Japanese with a skill which was shown by the British Navy in the war against Germany, so that the Russians never knew the exact strength or whereabouts of their antagonists. When the ice broke and the Japanese army moved north in Korea, Togo used the Pingyang estuary (Daidoko in its Japanese name) where he was only 195 miles from Port Arthur; or a base behind the Sir James Hall Islands, 180 miles from Port Arthur.

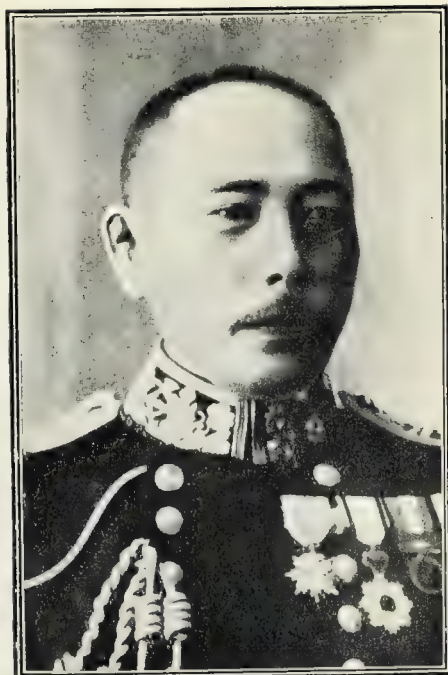
On March 8 Makaroff took over the command of the Russian Fleet, and about the same date the RETVISAN was floated, towed into the harbour, and there fitted with a

¹ 180 hm or about 19,800 yards, according to the Official Japanese History, *Seekrieg*, i, p. 64.



ADMIRAL TOGO

The Japanese Commander-in-Chief who gained the extraordinary victory at Tsushima. [see p. 169]



ADMIRAL KAMIMURA

Commanded the squadron of Japanese armoured cruisers which watched the Russian Vladivostock ships; and fought with great honour at Tsushima. [see p. 222]



ADMIRAL VITGEFT

Commanded the Port Arthur Fleet in the battle of Aug. 10, 1904, in which he was killed. [see p. 210]



ADMIRAL ROJESTVENSKY

Commanded the Russian Baltic Fleet at Tsushima, where he was severely wounded and captured. [see p. 252]

cofferdam.¹ A similar cofferdam was under construction for the repair of TZESAREVITCH; the use of this device by the Russians was highly ingenious and altogether effective.

Makaroff immediately after his arrival ordered strong detachments of destroyers to go out from Port Arthur nightly. On March 9, Togo with the bulk of his fleet, including Uriu's old cruisers, proceeded towards Port Arthur, sending the 1st and 3rd Destroyer Divisions, eight destroyers strong, in advance, to drive back the Russian torpedo craft. Arriving off Port Arthur the 1st Division fought a fierce action with four Russian boats, in which each side suffered considerably. The destroyers closed to about fifty yards, but neither antagonist could disable the other; the Japanese lost 6 killed and 8 wounded, and the Russians 2 killed and 22 wounded. About day-break the 3rd Division sighted two Russian destroyers returning to Port Arthur and cut off one of the two, the STEREGUSHCHY. The boat was disabled and overpowered with a loss to the Japanese of 1 killed and 7 wounded, but an attempt to tow her off failed and she sank. Most of her crew perished, though about a dozen men were picked up by the Japanese in the water or rescued from on board her; 40 of her men lost their lives.

While this action was proceeding in sight and within range of the forts, Makaroff himself in the NOVIK, followed by the ASKOLD, came out to aid the STEREGUSHCHY, only to be immediately driven off by Dewa's fast cruiser division. In these destroyer operations there was always the possibility that the Russian cruisers would sally forth to support their destroyers, and the battleships to support their cruisers, so that on each occasion there was a prospect of a battle. The Japanese were never caught off their guard: they invariably brought up their more powerful ships in succession behind their destroyers, so as to aid their small craft to the utmost. They always concentrated their maximum force when a collision was possible—a thoroughly sound principle.

Dewa's cruisers remained off Port Arthur while Togo with his six battleships steamed to the south of Laotishan and thence, at a range of 14,000 yards, carried out an indirect bombardment of Port Arthur, firing 150 rounds of 12-inch

¹ A cofferdam (Semenoff, *Rasplata*, p. 55, gives a good description) is a kind of box, open at the top and on the side on which it is to be fitted against the ship. It must fit exactly, and when it has been constructed it is sunk and placed against the damaged ship's side. The interior of the cofferdam is then pumped out when the pressure of the water forces the cofferdam to adhere. Work can thus be done on the damaged side of the ship. In this way the Russians overcame the want of a large dock at Port Arthur.

shell from 10.8 a.m. to 1.40 p.m. of March 10. The tide was out so that the heavy Russian ships were confined to Port Arthur. The *RETVISAN* was twice struck, one projectile damaging her cofferdam, but otherwise she suffered little injury, though she had 2 men killed and 13 wounded. The *SEVASTOPOL* and *ASKOLD* had a few casualties, yet were little the worse. The net result of the operation was once more to prove the ineffectiveness of indirect fire without good observation; aircraft would have enabled the Japanese to do much more execution. While the heavy ships were bombarding, Uriu with his old cruisers destroyed the Russian signal station on South Sanshantau, at the entrance to Talien Bay.

On the following morning Makaroff put to sea with the Port Arthur ships and exercised them in tactics. In these exercises the *SEVASTOPOL* rammed the *POLTAVA* but no very serious damage was done. Makaroff at once took extensive precautions against further Japanese attempts to block the entrance. He sank two merchant ships and fixed between them a timber boom which would render approach from the south difficult, and he placed gunboats, moored to buoys, in the entrance as a second line, while as a third line the *ASKOLD* and *BAYAN* were stationed inside the harbour so as to sweep the channel.

In the night of March 21-22, eight Japanese destroyers attacked, but were driven back by the fire of the batteries at Port Arthur. They ascertained, however, that the Russians were now thoroughly on their guard. Next morning Togo was off the port in force and detached the *Fuji* and *Yashima* to bombard the harbour with their 12-inch guns, firing indirectly while the fast cruisers observed. The bombardment lasted about an hour and did practically no damage, though a shell which burst in a shore barrack killed 6 men and wounded 8.

The Japanese ships were themselves the target of indirect fire from the Russian forts and ships, and several shells fell uncommonly near them. The efficiency of the Russians under Makaroff was evidently increasing. As the bombardment was closing Makaroff led out the Russian battleships, but refused to be tempted away from the shelter of the batteries, with only six armoured ships against twelve Japanese. When the Japanese had retired he laid twenty-four mines immediately south of Laotishan, and established batteries of medium guns on Laotishan, to command the waters from which the Japanese battleships bombarded.

CHAPTER XI

Makaroff's Sorties—His Flagship Mined and Sunk—Fresh Attempt to Block Port Arthur Fails—Japanese Landing Cuts off Port Arthur—Japanese Disasters—"Hatsuse" and "Yashima" Mined—Russians Decide on a Sortie—Vitgeft Goes Out and then Retires—Futile Torpedo Attacks on his Ships—Fresh Orders to him to Go Out.

ON March 26 Makaroff took his whole fleet southwards on a cruise for exercise, and there was another collision, between the SEVASTOPOL and PERESVIET, which resulted in the removal of the SEVASTOPOL's captain from his ship. In the night of the 26-27th a fresh attempt was made by the Japanese to block the harbour with four prepared merchant ships, manned by forty-two officers and men, escorted by the 1st, 2nd, and 3rd Destroyer Divisions (twelve boats) and the 9th Torpedo Boat Division. The four blockships were taken in with extreme bravery and all were sunk in or near the entrance despite the heavy Russian fire and the glare of the searchlights, yet they did not block the gullet. The crews were picked up by the Japanese torpedo craft with a loss of 4 killed and 12 wounded. On the Russian side the destroyer SILNY was engaged with the Japanese and was badly hit with a loss of 7 killed and 13 wounded. She ran ashore and though afterwards got off, was not fit for service for four weeks.

At daylight Makaroff led his fleet out of harbour and the Japanese saw that their enterprise had miscarried. They were now experiencing the results of their failure to destroy the Russian fleet on February 9. Makaroff during the next few days was constantly outside the harbour and caused Togo all the graver anxiety because of the movement of troops from Japan to the Korean ports. It became necessary to watch Port Arthur continuously. Kamimura, with his armoured cruisers and eight protected cruisers, was ordered to observe the 120 miles of water between Shantung and

Korea, in wireless communication with Togo's battle fleet at the Hall Islands. Preparations were made to establish an advanced base at the Elliot Islands, seventy miles from Port Arthur, and also once more to attempt the blocking of the entrance. To delay and hamper the Russian Fleet orders were given to lay a number of mines off Port Arthur. This was the first such operation on the part of the Japanese Fleet in these waters and it was of historic importance. The idea was to gain time, when Makaroff put to sea, and thus enable Togo's heavy ships to arrive.

On April 11 the new armoured cruisers *Nisshin* and *Kasuga* joined Togo's fleet—a welcome reinforcement. Violent snowstorms and heavy seas prevailed during the early April, but in the evening of April 12, which was dark, misty and snowy, eight destroyers and four torpedo boats with the minelayer *Koryo Maru* steamed in towards Port Arthur. They did their work well; the mines were laid close to the shore, within the three-mile limit, in the waters through which the Russian Fleet usually steamed. The Japanese craft were seen from the shore despite the thick weather, but were taken for Russian destroyers and therefore were not disturbed. At daybreak the Japanese 2nd Destroyer Division caught the Russian destroyer, STRASHNY, at sea and after a fierce action with her set her on fire, hit and exploded a torpedo in one of her tubes and sank her, with a loss themselves of 5 wounded. In the STRASHNY all on board perished except 5 men, picked up later by the Russians. The Japanese chased another Russian destroyer, the SMYELY, and pressed her hard.

Makaroff had noted the movements of strange craft near the entrance to Port Arthur and had decided to order the sweeping of the waters where they had been at work. But at daybreak anxiety for the safety of his destroyers, STRASHNY and SMYELY, led him to send out the BAYAN to their support and prepare at once to follow her with the rest of his fleet before such precautions had been taken. She left the harbour followed by the DIANA and ASKOLD, but had not got far when Dewa steamed in to cut her off with his three fastest cruisers (*Chitose*, *Takasago*, *Kasagi*) reinforced by the *Tokiwa* and *Asama*, and quickly drove her back, though now the NOVIK had also come out. She was fired at and hit, but not seriously damaged, and she reported to Makaroff that there were still possibly men alive floating on wreckage where the STRASHNY had gone down. With his flag in the

PETROPAVLOSK he came out of the harbour followed by the POLTAVA, and without further thought about sweeping for mines, preceded by the BAYAN, he led his ships towards the Japanese and opened fire at 7,000 yards about 9 a.m. of April 13. The Japanese cruisers increased speed and went away, drawing him fifteen miles south of Port Arthur, when Togo's battleships emerged from the mist, heading to cut the Russians off. Makaroff on this fell back and succeeded in regaining the shelter of the Port Arthur batteries, where the rest of his battleships joined him.

There was much smoke near the harbour and the weather was misty, but as Togo defiled past the fortress just out of range, he saw that the Russians were steaming slowly to the north-east under the coast. At 10.32 a.m. (Japanese time) the PETROPAVLOSK was close to Lutin Rock when there was a sharp detonation like the discharge of a 12-inch gun, followed by a much more violent explosion which shot up clouds of dense brown smoke, and the Russian flagship broke in the middle, each end standing up from a whirlpool of steam and smoke. Two more explosions followed from the boilers and the other magazines, and then, two minutes after the first detonation, the PETROPAVLOSK vanished for ever.

The first explosion was caused by a Japanese mine which fired eighteen mine charges in the PETROPAVLOSK's mine room; the final explosion was that of the magazines. Destroyers and small craft hurried towards the water where she had sunk. Ten officers—among them the Grand Duke Cyril—and 120 men were picked up, but Makaroff was never seen again, and with him perished the painter Verestchagin, 32 officers and over 600 men. His loss was a terrible blow to the Russian Fleet; he was an officer of genius and energy and had he lived Togo's task would have been far more difficult. "With him," wrote Captain Bubnoff, an officer in the Russian destroyer force, "all hope of rendering the squadron efficient was buried."

When the PETROPAVLOSK vanished, Ukhtomsky, the second in command, hoisted the signal, "Follow me," and led the fleet westwards to a point near the entrance to the harbour. The line was turning near the Tiger Peninsula when there was a violent explosion under the POBIEDA which immediately listed to starboard. She had struck a mine amidships, abreast of a bunker, which was full of coal. Three of her compartments were breached and a group of boilers was put out of action, but she still floated. Panic broke out in the

Russian squadron. Supposing that Japanese submarines were at work, the crews fired wildly into the water. With some difficulty order was restored and Ukhtomsky led his shaken force into the harbour. The repairs of the POBIEA were at once taken in hand, but the Russian battleships had sunk to three (PERESVIET, SEVASTOPOL, POLTAVA), though the RETVISAN and TZESAREVITCH were now fast going forward. Alexeieff took over the command of the Russian Fleet for the time being with Vitgeft as his second in command.

On the following day, April 14, the Japanese destroyers were off the port but found no ships outside, and that morning another long range bombardment was carried out from the south-west of Laotishan by the *Kasuga* and *Nisshin*. The Russians replied with indirect fire, in which the SEVASTOPOL put one of her own 12-inch guns permanently out of action, and with a few shells from their new batteries on Laotishan. The bombardment was resultless except that it produced nervous tension in the Russian Fleet and caused 12 casualties ashore.

The Japanese Staff now determined on yet another attempt to block Port Arthur, in order to cover the landing of the 2nd Japanese Army, which was to begin near Yentai (or Yentoa) Bay, fifty-three miles north-east of Port Arthur at the earliest possible date. Thirteen prepared merchant vessels were to be employed. Several of them carried guns and searchlights, and duplicate circuits were fitted in all to explode the charges for sinking the ships, which were manned by 37 officers and 207 men—all volunteers. The strength of the Russian defences had by this date been greatly augmented and numerous mines had been laid so that the difficulty of the enterprise was enormous. In the night of April 27-28 the Japanese destroyers reconnoitred the entrance to Port Arthur; on May 2 the blockships proceeded on their desperate undertaking, which was, however, to be deferred if the weather was unfavourable.

That evening the weather conditions changed and a violent wind began to blow. An order was issued to postpone the attempt, but it failed to reach eight of the blockships, and these proceeded towards the entrance. As in the previous operations extraordinary heroism was shown. Four of the eight got close to the entrance and were sunk there; the other four were sunk further out but in such positions as to cause some obstruction though not completely to close the passage. The mines, the booms, the

searchlights and the tremendous fire on the Japanese vessels prevented any complete success. Of the 158 officers and men who manned the eight blockships actually sunk, only 63 were rescued alive by the Japanese torpedo flotilla, and of these 63, 20 were severely wounded. The Russians captured 16 men; the other 79 perished. In the Japanese torpedo flotilla two vessels were damaged with a loss of 2 killed and 3 wounded. When daylight of May 3 dawned it was thought that the attempt had been completely successful, and Togo reported to that effect to Tokio.

The transports of the 2nd Army left at once for Hall Islands, where a strong Japanese squadron met them to convoy them to Yentai. Booms had already been laid between the islands of the Elliot group, and the eight miles of water between the chief island and the coast of the Kwangtung peninsula had been obstructed with mine-fields, dummy mines, nets and booms in short sections. Togo made the Elliot Islands his advanced base, and on May 5 a Japanese naval brigade, over a thousand strong, disembarked on the muddy shore west of Yentai, to cover the landing of the army. The intention was to disembark a sufficient force to advance rapidly on Dalny and seize that excellent base for further operations against Port Arthur. So good were the Japanese arrangements that on the first day of the landing, 9,500 troops were placed ashore, despite a heavy sea. The smaller Japanese gunboats supported the troops, but the Russians, beyond firing a few shots, offered no resistance. On May 14 Port Arthur was finally cut off by the advance of the Japanese on land.

On learning of the Japanese landing, Alexeieff left Port Arthur on May 5, placing Vitgeft in command of the fleet. Before he departed he summoned the Russian destroyer officers and told them that as they had twelve boats in effective condition they ought to attack the Japanese transports which were within easy reach. They were against an attack unless the larger Russian ships supported them, and they pointed out that if they were not covered by their own heavy ships the Japanese war vessels escorting and guarding the transports would certainly attack them and they would be destroyed. On the following day Vitgeft called a council of officers who decided that a sortie in force would mean the annihilation of the fleet in view of the Japanese mines and the small number of Russian ships serviceable; and that for the destroyers alone to go out would probably be fatal to them.

Down to this point fortune had generally favoured the Japanese, but it was now to turn against them. The wastage of the Port Arthur Fleet had so far been most serious. Of its seven battleships one (PETROPAVLOSK) was sunk, and three (POBIEDA, TZESAREVITCH and RETVISAN) were temporarily disabled. Two of its best cruisers (VARIAG and BOYARIN), one of its mine-layers (YENISEI), and three of its destroyers (VNUSHITELNY, STEREGUSHCHY and STRASHNY) were at the bottom. Against these losses the Russians had nothing to show; the Japanese had not had a single vessel sunk. But now the Japanese losses began. On May 12, Torpedo Boat No. 48 while mine-sweeping in Kerr Bay struck a mine and sank with a loss of 7 killed and 9 wounded. On May 14, the small cruiser *Miyako* (1,700 tons) struck a mine in the same waters while covering mine-sweeping operations and sank with a loss of 2 killed.

During that same day the Russian mine-layer AMUR took advantage of a fog, which kept the Japanese small craft some distance from Port Arthur, and stole out to sea. She had received reluctant permission from Vitgeft to lay mines ten to fifteen miles south of Laotishan, outside territorial waters, in an area where the Japanese battleships constantly appeared. She laid forty mines accordingly with a total disregard for neutral safety and thus inaugurated a new and barbarous form of sea war. Down to that date mines had been employed freely by each side, but always in territorial waters. Now they were placed by the Russians in one of the great highways of international traffic, without any warning or notice.

Early in the morning of May 15, Dewa, with the *Chitose*, *Yoshino*, *Kasuga*, *Yakumo* and *Fuji* steaming in line ahead as he neared the Elliot Islands, on his course from Port Arthur, ran into a dense fog. About 1.40 a.m. the *Kasuga* increased speed, fearing to lose contact with her next ahead, and ran violently into the port quarter of the *Yoshino*. The *Yoshino* took so heavy a list to port that nothing could be done to save her; immediately after the order had been given to "abandon ship" she capsized, and Captain Saheki, her commander, with 31 other officers and 287 men went down in her, maintaining perfect discipline to the last. Only 100 officers and men were saved; and the *Kasuga* sustained serious damage. Thus Japan had lost one of her best fast cruisers and damaged another.

At 10.50 a.m. that fatal May 15, the *Hatsuse*, *Shikishima*, *Yashima*, *Kasagi* and *Tatsuta*, covering the close watch of

Port Arthur, entered the Russian mine-field, and the *Hatsuse* struck a mine astern. Her steering compartment filled but she was in no immediate danger. A few minutes later the *Yashima* struck a mine on the starboard side. Both damaged ships were taken in tow when at 12.33 p.m. the *Hatsuse* struck a second mine. There was a terrific report and a dense cloud of yellow smoke rose from her; in two minutes she sank, taking with her to the bottom 36 officers and 457 men. Admiral Nashiba, her captain, and 214 officers and men were rescued. Her magazine had been exploded by the mine, exactly as had the PETROPAVLOSK's.

There was still hope of saving the *Yashima*, but first the Russian destroyers had to be driven off. They had come out, hearing the explosions, and approached within 7,000 yards of the *Kasagi*, when she opened a violent fire on them. Upon this they turned and retired. The *Yashima* was towed to near Encounter Rock, and there she was anchored with a terrible and steadily increasing list. The order was given to abandon her, and after the crew had sung the national anthem and given three cheers, they left her. A little later she capsized. Yet another disaster was to come that day. Nashiba transferred his flag to the despatch boat *Tatsuta*, which in thick fog at 6.25 that evening ran on the rocks in the Elliot Islands, and was so seriously damaged that, though she was got off, it was weeks before she was again fit for service.

Thus in one single day the Japanese strength of battleships, which in the first instance was none too great, had diminished by one-third, from six to four ships. The blow was the more stunning because it fell so suddenly and because there seemed no real security against its repetition. It was, indeed, a fearful penalty that the Japanese Navy had to pay for the loss of its great opportunity on February 9, when it had had the chance of annihilating the Russians at a single blow. To postpone the decision in war is nine times out of ten to incur increased risk. The Japanese censorship kept the loss of the *Yashima* secret, and though the Russians were aware that another important Japanese vessel besides the *Hatsuse* had gone down, they were not quite certain as to its exact identity. Thenceforward Togo used his four precious battleships with even greater caution and as far as was possible kept them out of the ever-spreading mine zone. In three days the Japanese Navy had lost 34,000 tons of modern ships. The effect of the Japanese disasters was far-reaching, as the Russian Government after abandoning the idea of sending a

reinforcing fleet from the Baltic to the East, now resumed its plan, and Togo had fresh anxieties and perils to face.

Even then the misfortunes of the Japanese did not end. On May 17, while on blockade duty, the destroyer *Akatzuki* struck a mine and 23 officers and men in her perished as she went down. Very early that same morning on the way to Kinchau Bay the *Akagi* in a dense fog rammed and sank the despatch boat *Oshima* (620 tons). The spirits of the Russians in Port Arthur revived at the Japanese calamities and the Russian destroyers constantly came out at night and laid fresh mines. The Japanese warships on their part, in the night of May 19-20, laid a minefield in the Port Arthur roadstead, and during the closing weeks of May gave valuable aid to the 2nd Army. A squadron composed of the old armoured ship *Heiyen* with the gunboats *Akagi*, *Tsukushi*, and *Chokai* and four torpedo boats was sent round the Kwangtung peninsula to Kinchau Bay, but in the battle of Nanshan on May 26, owing to the ebbing of the tide, it had to suspend its fire soon after 5 p.m.,¹ and the Russians fell back because of an order from Stoessel, the commander at Port Arthur. In this battle the Russian gunboat BOBR (one 9-inch and one 6-inch gun) and two destroyers gave valuable support to the Russian right from Talien Bay, where the Japanese Navy could not reach them because of the mine fields. The ebbing tide forced them also to withdraw in the afternoon.

On May 26 Togo proclaimed the blockade of the whole Liaotung peninsula, and on the 29th Japanese troops seized Dalny with its docks, wharves, cranes and appliances needed for landing a powerful siege train. It was to be the base of the new 3rd Army operating against Port Arthur, while Talien Bay, as soon as it could be cleared, was to become the base of the 2nd Army. The Japanese destroyer and torpedo flotillas henceforward used Dalny as their headquarters, and its value to them was immense. The excellent dock there was in constant employment. Japanese warships watched the west coast of the Liaotung peninsula and shelled trains on the railway as far north as Kaiping. A systematic blockade of Port Arthur began. Meantime off Port Arthur day after day skirmishing proceeded between the Japanese and Russian destroyers and small craft, and the Russian destroyer VNIMATELNY was lost on May 26 through running on a rock. The 3rd Army was not yet strong enough to attack the fortress, and on June 13 yet another disaster befell the Japanese owing

¹ *Seekrieg*, ii, p. 49. Not 2 p.m. as the *British Official History* states, i, p. 169.

to the loss of eighteen 11-inch howitzers of the siege train in the *Hitachi Maru*, sunk by the Vladivostock squadron. They were of vital importance in the Japanese plans and with them went all possibility of swiftly storming Port Arthur.

When Vitgeft was pitchforked into command of the Port Arthur Fleet he told his captains: "I expect you to assist me with words and deeds: I am no leader of a fleet." Early in June a Russian naval council, which he had convoked, decided to attempt a sortie as soon as the RETVISAN, TZESAREVITCH and POBIEDA were ready for sea. On the 15th the fast destroyer LIEUTENANT BURAKOFF was sent off to Newchwang with a message for Alexeieff. She passed through the Japanese flotilla and returned on June 17 with orders to Vitgeft to go out at once. Tide conditions and the need thoroughly to sweep the exit prevented a sortie for some days and the 22nd was fixed. But on that date the POBIEDA's captain was taken very ill and had to be replaced, so that the Russian ships could not leave till June 23. Vitgeft's intentions were to go out, remain a night at sea and then next day attack the Japanese base in the Elliot Islands. He had available the battleships TZESAREVITCH (flag), RETVISAN, POBIEDA, PERESVIET, SEVASTOPOL, POLTAVA; the armoured cruiser BAYAN; the cruisers DIANA, PALLADA, ASKOLD and NOVIK; two old gunboats and sixteen destroyers. The Japanese did not know that the three damaged battleships had been repaired and thus they were about to experience a most disquieting surprise.

The Russians began to move out at 5.40 a.m. (Japanese time), when the NOVIK and other vessels were sighted by the vigilant Japanese destroyers. The *Shirakumo* steamed with the news to Dewa, who was cruising with the *Yakumo* and *Chitose* off Encounter Rock, and he gave the alarm by wireless to Togo at the Elliot Islands: "Enemy fleet is leaving the harbour." Togo had with him his four battleships; the "greyhounds", *Takasago* and *Kasagi*; the *Itsukushima*, *Hashidate*, *Yaeyama*, *Akashi*, *Suma*, *Akitsushima* and *Idzumi* cruisers; the 2nd, 3rd and 5th Destroyer Divisions and three Torpedo Boat Divisions. The two "greyhounds" he sent off to Port Arthur to watch, and he himself without the slightest hesitation weighed and put to sea at 9.50. As wireless alarms were taken in, from all quarters Japanese ships began to close upon Port Arthur, in one determined, carefully concerted movement. The old *Chinyen* and *Matsushima* hurried seawards from Kerr Bay; the armoured cruisers *Asama*, *Nisshin*,

Kasuga, and the light cruiser *Chiyoda*, steered towards the Russian base. Every ship that could float and fight was now concentrating.

Togo ordered his light craft to do their best to delay the Russian movements. Owing to the difficulty of sweeping up the Japanese mines which had been laid in such abundance, hours passed before the Port Arthur Fleet was ready to put to sea. The Japanese destroyers of the 1st and 4th Divisions meanwhile engaged the sweepers and were themselves engaged by the Russian destroyers. These, in a confused encounter, they drove back, but were themselves driven off by the *Novik*. At 3.30 p.m. Vitgeft dismissed the sweepers and one flotilla of destroyers, and, after reorganising his line ahead so that the battleships were at its head in the order given above, steamed slowly south-east. The great strength of the Russians startled the Japanese, but the Russians were even more alarmed to see the horizon covered with Japanese warships converging upon them with the utmost audacity.

Togo's plan was to draw the Russians well to the south, and having got them far out to attack them, and during the night after the battle to send in his torpedo craft against them. He was without four of his best armoured cruisers under Kamimura which were watching the Vladivostock force. If he meant battle seriously, it was a great mistake on his part to delay the Russian movements by his destroyer operations earlier that day. The further Vitgeft was from Port Arthur, the more certain his destruction must be if battle was once joined and the Japanese attacked with determination; moreover the easier would it be to bring up Kamimura's squadron. On Vitgeft's part the only sound proceeding in view of the Russian strategical position was to force a close engagement, if he could at once, and inflict the maximum of loss on the Japanese before his ships went to the bottom. He might thus with good luck have prepared the way for a favourable peace, if the Japanese were so much weakened as to feel themselves unable to deal with a Russian reinforcing fleet.

What actually happened was that when at 6.30 p.m. Vitgeft saw the four Japanese battleships lying across his course with four powerful armoured cruisers and a multitude of smaller craft in support of them, his heart failed. He was a brave enough man, but had not that firm moral courage which is required of a great leader in circumstances so grave. He turned from the Japanese and steamed back to Port Arthur as twilight fell. Far off the heavy Japanese ships vanished

and the torpedo craft gathered round the Russians. As yet, Vitgeft's fleet had not fired a shot except in getting out of harbour and now as it fled it was covered by clouds of smoke and by the rising mist of evening. Darkness had fallen by the time the Russians were back in the roadstead, but as the evening advanced the mist disappeared, and it was clear and calm with the moon in the first quarter.

At 9.38 p.m. the Japanese torpedo attacks began. They were delivered by forty-four destroyers and torpedo boats, all of good type manned by magnificent seamen and commanded by resolute and skilful officers. The circumstances were on the whole most favourable. The light was sufficient to reveal the position of the Russian ships and the fleet had landed many of its smaller guns (twenty-six 6-inch and thirty 12-pounders) to assist in the defence of Port Arthur. It was a favourite dogma of torpedo theorists in days before the war that such a multitude of torpedo vessels could destroy a small force of armoured ships if the torpedo flotilla could only deliver its assault in the darkness. But the attacks which continued all night and were pressed with the utmost fury brought the most insignificant result. Not a single Russian ship was hit; in the confusion of one of the attacks, however, just as the Russians were anchoring in the roads, the SEVASTOPOL struck a mine and was a good deal damaged, though without any risk of her loss.

Russian eye-witnesses ashore declared that the Japanese came in very close and displayed superlative bravery; their torpedoes were fired at ranges which were generally below 1,000 yards, but in a few cases reached 1,500 or 2,000 yards.¹ The Japanese escaped with insignificant losses. One of their torpedo boats, the *Chidori*, was struck by a Russian torpedo but not much damaged, as she got back to the Elliot Islands; and one destroyer and three torpedo boats were hit by shells. Their total casualties were 3 killed and 5 wounded. The failure of the attack could scarcely have been more complete, and it was probably due in large part to the fact that surface torpedo craft need to be supported by more powerful ships and can do little until the artillery in the hostile heavier vessels has been crippled in battle. Ten unexploded torpedoes were picked up on the coast by the Russians.

On the following day the Russian Fleet returned to the harbour and the work of repairing the SEVASTOPOL was begun. The Japanese resumed their close watch on Port Arthur, and

¹ Japanese official information.

made several unsuccessful torpedo attacks on the *PALLADA* which remained behind booms in the Roads. They were not able to prevent the Russian warships from coming out from time to time and shelling the positions of the 3rd Army under cover of the minefields. On June 28 Torpedo Boat No. 51 in dense fog ran ashore and was lost with 13 men on her way to the Elliot Islands. All the waters round the Kwangtung peninsula were now highly dangerous; hundreds of mines had been laid and many of these had broken adrift and were floating. On July 5 the old Japanese gunboat *Kaimon*, while co-operating with the army, struck one of these mines and sank with a loss of 21 men.

On June 29 the fast Russian destroyer, *LIEUTENANT BURAKOFF*, ran out of Port Arthur to Newchwang and some days later returned with orders for Vitgeft, directing him to keep his ships coaled and ready and, if Port Arthur ceased to be safe, "to put to sea in good time and make for Vladivostock, if possible, avoiding an action." This order was ambiguously worded by Alexeieff, to evade responsibility, and the naval council at Port Arthur had a pretty problem in interpreting it. They decided to stay, for, as Vitgeft pointed out, the Japanese were not in the least likely to let him go without an action.

If Alexeieff meant business he ought to have ordered the fleet to go out and fight, doing the utmost damage to the Japanese. There was great delay in his communications with Vitgeft owing to the fact that Port Arthur had been cut off, and the Russians in Manchuria were not apparently in wireless touch with the fortress. On July 28 at Alexeieff's order the question of a sortie was once more considered and rejected by the Port Arthur officers, but after further discussions the controversy was closed by an order from the Czar to the fleet to go out. Vitgeft was told by Alexeieff to "take the squadron out of Port Arthur," and to remember "the exploit of the *VARIAG*."

Meantime the light craft of both fleets had been frequently engaged, the Russian ships attacking the Japanese troops on land, and the Japanese vessels endeavouring to drive back the Russian ships. On July 24 the *LIEUTENANT BURAKOFF* east of Port Arthur, in Takhe Bay, was torpedoed by two Japanese picket boats and sunk; and another Russian destroyer, the *BOEVOI*, was badly damaged. On July 26 the Japanese light cruiser *Chiyoda* struck a mine off Takhe Bay but was salvaged and taken to Dalny with a loss of 7 killed and 27 injured. Next day the Russian armoured cruiser *BAYAN* struck a mine

1904]

FRESH SORTIE ORDERED

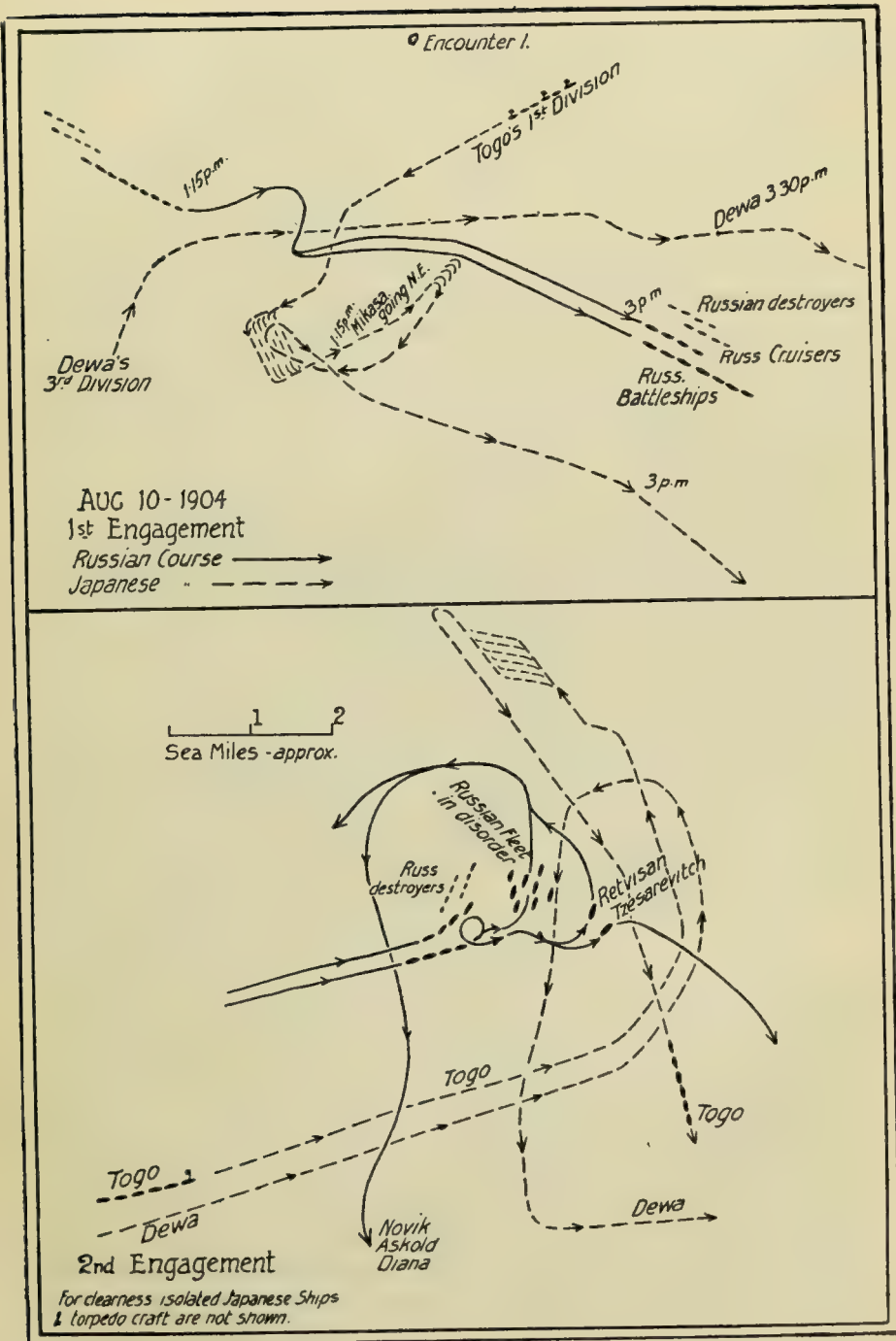
which flooded her foremost stokehold, and laid her up just as the SEVASTOPOL was ready for sea. On August 7, the Japanese 3rd Army on land had closed sufficiently upon Port Arthur to permit the long Japanese 4.7-inch guns to shell the interior of the port, aided by observations from a captive balloon. The TZESAREVITCH was hit and her wireless operator killed; Vitgeft was slightly wounded by a splinter. The bombardment continued and on the 9th the RETVISAN was several times hit, once badly below the water-line, filling a compartment with 400 tons of water. Three men were killed and her captain wounded.

CHAPTER XII

The Russian Fleet puts to Sea—Battle of August 10, 1904—Complicated Manœuvres—Long Range Action—Japanese Flagship Hit—Crisis of the Battle—Two Fatal Shots for the Russians—Vitseft Killed—Flight of the Russian Fleet—Its Escape from the Japanese—Hits and Casualties—Japanese Seize the “Rieshitelny”—The Vladivostock Cruisers—Raids and Commerce Destruction—Japanese Siege Guns Lost—Kamimura’s Ill Luck—He Brings the Vladivostock Ships to Action—Battle of August 14, 1904—“Rurik” Sunk—Two Ships Escape—Losses.

ON August 9 the Russian Fleet completed its preparations for going to sea. The Japanese large ships seemed to have vanished. About 6 a.m. of August 10 the fleet began to leave the port. Vitseft, on whom the presentiment of death weighed, bade his friends farewell with the words: “we shall meet in another world”; and at 9.30 (Japanese time) the last ship was clear. Except for the absence of the BAYAN, the force was identical with that which had made the sortie on June 23. The Russian vessels were painted a dark blackish-brown colour, which distinguished them from the grey Japanese. The weather was fine and still; a light mist veiled the sea to the east, but through it as the fleet steamed out, the dim forms of Japanese ships came into view watching far away. (See Table XVI for details of fleet.)

Togo had long expected a sortie and when at 6.35 a.m. the alarm came, given by the 2nd Destroyer Division off Port Arthur, he was ready with his four battleships north of Round Island. Again as on June 23 the Japanese ships began their concentration, and the *Kasuga* and *Nisshin* took their places in Togo’s line of battle. Again, as on that earlier day, Kamimura was absent with four powerful armoured cruisers, watching the Vladivostock force, so that Togo’s armoured strength was eight modern ships (four battleships, and four



PLAN 15

armoured cruisers)¹ besides the old *Chinyen*, against six Russian armoured vessels, all battleships. Of protected cruisers the Russians had four modern vessels against nine Japanese vessels of the same class, six of which were modern. The Russians took out with them eight of their destroyers, against which the Japanese had seventeen destroyers and twenty-nine torpedo boats.

At 12.30 p.m. Togo, with his six armoured ships in single line ahead, south-east of Encounter Rock, sighted the Russian Fleet thirteen miles away, steering south-east. Vitgeft's line was thus formed: TZESAREVITCH (flag), RET-VISAN, POBIEDA, PERESVIET (flag of Rear-Admiral Ukhtomsky), SEVASTOPOL, POLTAVA, ASKOLD (flag of Rear-Admiral Reitzenstein), PALLADA, DIANA. To port (left) of this line were the NOVIK, eight destroyers, and the hospital ship, MONGOLIA. The Japanese ships hoisted their great battle flags, but Togo, wanting to draw the Russians farther out and probably also to give time for the *Asama* and *Yakumo* to arrive, did not as yet engage. He turned his ships together eight points away from the Russians, thus coming into line abreast. Vitgeft altered course to follow him whereupon at 1.15 Togo turned his ships once more together eight points bringing his fleet back into line ahead on the old course, across the course of the Russians, with the *Nisshin* under Kataoka in his van, and simultaneously all his six vessels opened an extremely slow fire at a range of 14,000 yards. The Russians about this time were going dead slow to allow the POBIEDA, which had engine trouble, to get back into station.

Vitgeft turned away to port, apparently mistaking various debris which was floating in the water for mines laid by the Japanese (though they made no use of mines in the engagement) and then again turned sharply to starboard. Meantime Togo about 1.30 turned simultaneously sixteen points to starboard, inverting the order and direction of movement of his line of battle, and bringing the *Mikasa* once more to its head. He increased speed and tried to "cross the T" of the Russian line. Vitgeft met this by turning away to port and the two fleets passed one another going fast at a range of over 7,000 yards on opposite courses before Togo turned once more "crossing the T" of the Russian rear. At this moment Reitzenstein, the Russian cruiser commander, in the ASKOLD

¹ *Mikasa* (flag), *Asahi*, *Fuji*, *Shikishima* (flag of Rear-Admiral Nashiba), *Kasuga*, *Nisshin* (flag of Vice-Admiral Kataoka): a flagship was always at each end of the line. The *Asama* and *Yakumo* were some distance off.

signalled to the Russian cruisers which were in the rear of the Russian line and were now getting Togo's fire, to take station to the lee and port side of the Russian battle line. The cruisers only received a few hits, none of them serious, and Togo's manœuvre brought no result though about the battleships the sea boiled with falling projectiles. The 6-inch guns joined in when the range fell; hitherto only the heavy guns had been in action.

These complicated manœuvres had now brought Togo astern of the Russians in a disadvantageous position, so that the *Mikasa* was abreast of the centre of their line, to starboard. She was being hit rather frequently, three times in fifteen minutes, but the Russians were steadily edging away and increasing distance, till at 3.20 firing ceased on both sides, just as Dewa in the *Yakumo* with the *Kasagi*, *Takasago* and *Chitose* opened long-range fire on the Russian cruisers from the port side, also attacking the *POLTAVA* which had dropped astern. He soon suspended this fire and steered to join Togo's fleet. Thus the first stage of the battle—a scrambling, long-range engagement in which each side had shown anxiety to save its ships—was over.

The *Mikasa* had suffered one severe hit from a 12-inch shell on her mainmast which killed 8 men and wounded 5; the *Nisshin* had had two hits with a loss of 3 killed and 13 wounded; and the *Yakumo*, Dewa's flagship, struck by a shell from the *POLTAVA*, which exploded on her main-deck, had 22 killed or wounded. The fact seems to have been that in this long-range firing, which is much less trying to the nerves and sense of discipline than a close and fierce encounter, the Russians shot as well as the Japanese. Hits were rare and were mainly a question of luck; and thus in the light of subsequent knowledge, Togo's plan of engaging in long bowls, instead of avoiding risk risked everything. Terrible as his anxieties were, he forgot that he who seeks first to avoid damage to his own ships will almost certainly fail to damage the enemy. For the Russian battleships at this point were scarcely scratched, and as greetings interchanged with the Russian cruisers showed,¹ their crews were in excellent spirits.

The day was advancing; the Russian Fleet was all this time pressing at some 10 to 12 knots to the south-east and toward the coast of Korea; and if those brown ships could once get well east of the Japanese Main Fleet there was nothing

¹ Semenoff, *Rasplata*, p. 214.

—so far as Togo knew—to prevent them from reaching Vladivostock. Kamimura's squadron would be far too weak for that purpose and might itself be destroyed on the way. Togo increased speed as the afternoon went on, and about 5.30 was forty-five miles north of Shantung promontory, by which time he had once more brought his ships within range of the Russians and to starboard of them. Their rear ship, the *POLTAVA*, was far astern, and at her he opened fire at a range of 8,000 yards. The engagement became general; steaming on parallel courses with distances which slowly sank, each side battered the other, and still there was no decision or sign of one. Rear-Admiral Dewa in the *Yakumo* (Captain Matsumoto) moved in 500 yards nearer the Russians than the rest of Togo's line and engaged his old antagonist, the *POLTAVA*, as at long range the *Yakumo's* fire was not satisfactory. The other Japanese cruisers took position astern of Dewa, but well to the disengaged side of the battle line. The armoured cruiser *Asama*, which had been coaling at the base when the alarm was sent out, was now racing up astern to co-operate with Togo.

When the gunnery action opened for the second time the *Mikasa* and *Fuji* fired at the *TZESAREVITCH*; the *Asahi*, *Shikishima*, *Nisshin* and *Yakumo* at the *POLTAVA*; and the *Kasuga* at the *SEVASTOPOL*; so that there was a concentration of attack on the Russian ships at the two ends of the line, but from time to time targets were changed. For considerable periods of the engagement some of the Russian battleships were left disengaged, a state of affairs which favoured good shooting on their part and strengthened confidence in the disengaged ships, as the instance of the *Derfflinger* at Jutland subsequently showed. Moreover, with frequent shifts of target accurate shooting at long range is much more difficult. The Russian fire was concentrated on the *Mikasa* and the number of hits made on that ship must have caused Togo renewed disquietude, in view of Japan's small battleship force. Many hits could be seen from either fleet; "our gunlayers," says Semenoff, "were not shooting worse than the Japanese." At the game of long bowls there was no great difference between the fleets.

About 6 p.m. the *PERESVIET's* main topmast was shot away and a few minutes later her fore-topmast went; her fore-turret was struck and put temporarily out of action. The *POLTAVA* astern showed a good deal of external damage, but she had suffered no essential injury from the concentration of

fire. About this time the Japanese had a whole series of fresh misfortunes. The *Mikasa* had serious trouble in her after-turret; one of her 12-inch guns was damaged, probably by a premature¹ and the turret for some time was put out of action. Lieut.-Commander Prince Fushimi of the Imperial family was severely wounded, and 1 man was killed and 19 wounded. The *Asahi* had a breakdown in her after-turret and one of the *Shikishima's* 12-inch fore turret guns was also disabled by accident. Thus of the sixteen modern heavy (12-inch) guns in the Japanese Fleet five were now out of action, and the position of the Japanese was growing critical. The long-range fight had turned against the better seamen and gunners. In the Russian Fleet two turrets were temporarily out of action in the PERESVIET (two 10-inch) and RETVISAN (two 12-inch guns).

Such were the conditions when two Japanese hits altered the fortune of the day. At 6.37 two Japanese 12-inch shells, admirably aimed by gunners with iron nerves, struck the TZESAREVITCH. One hit her foremast and burst on it, sweeping the lee of the forebridge and tearing Vitgeft, who was standing there with a group of officers and signalmen, to pieces. His chief of staff, Rear-Admiral Matusevitch, who was near him, was severely shaken and wounded, while 2 other officers and 15 men were killed or wounded. A second shell burst against the projecting steel roof of the conning tower; splinters and the blast swept the interior, killing or disabling everyone inside and jamming the helm hard to starboard, so that the ship turned suddenly to port, heeling violently with the helm at an extreme angle, and continued turning, with her brain out of action.

She was followed by her next astern, the RETVISAN, for some minutes until it became clear that she was either sheering out of the line or was out of control. She cut through the Russian line between the fourth ship, PERESVIET, and fifth ship, SEVASTOPOL, both of which had to alter course. The whole Russian group of battleships fell into the extremest confusion. No battle orders had been issued: no one knew who was in command; and Ukhtomsky, Vitgeft's junior admiral, was in the PERESVIET whose topmasts and signalling appliances had been shot away. Togo closed to slightly over 4,000 yards and increasing his proportion of hits at once, poured in a heavy fire upon the RETVISAN and PERESVIET, as

¹ According to Japanese official information the damage was *not* caused by a Russian projectile, as was reported at the time.

the mob of Russians began to head north-west in the general direction of Port Arthur. The Japanese were in admirable order as if at exercises, though the *Mikasa's* damage showed, and the older Japanese cruisers were now coming up athwart the Russians. It seemed as if nothing could save the Port Arthur fleet. At this juncture, however, Ukhtomsky succeeded in making his other ships see his signal, "Follow me," and turned toward Port Arthur. For some minutes the Russian destroyers, apparently not observing the signal, had continued to steam eastwards towards the Japanese and it is probable that Togo thought they were intending torpedo attack, and therefore increased his distance from the Russian battleships. What is indisputable is that as night was falling he let them go, and about 7.50 p.m. the main battle was broken off. Presumably he feared the risks of a night action.

Of the Russian Fleet the five battleships *RETVISAN*, *PERESVIET*, *POBIEDA*, *SEVASTOPOL* and *POLTAVA*, with the protected cruiser *PALLADA*, and three destroyers returned to Port Arthur. The night was dark and cloudy, and though the Japanese destroyers and torpedo boats attacked repeatedly, they failed with their torpedoes as completely as on June 23, though on this occasion the upper works of the Russian ships had been much knocked about. They succeeded, however, in cutting off the Russian destroyer *BURNY* and forced her to run ashore on the Shantung coast. The Japanese had Torpedo Boat No. 38 hit and damaged by a torpedo—possibly one of their own—with 9 casualties. Of the other Russian ships, most sought on various excuses to reach neutral ports instead of proceeding to Vladivostock, as they were ordered; and despite the Japanese destroyers and torpedo craft they got away in the darkness. The *TZESAREVITCH* with the *NOVIK* and three destroyers reached Kiaochau, at which German port the *TZESAREVITCH* was interned with the destroyers.¹ The *NOVIK* coaled and alone made a gallant attempt to reach Vladivostock. The *ASKOLD* and *GROZVOI* (destroyer) reached Shanghai; and the *DIANA* steamed to Saigon where the French interned her.

As for the *NOVIK*, after shipping as much coal as she was allowed to take on board, she steamed out into the Pacific, to run round Japan by the eastern coast. She was sighted on

¹ The British Government on August 15 pressed on the German Government the importance of immediately disarming these ships and it was done. *Grosse Politik der Europäischen Kabinette*, XIX, 1, pp. 248-9.

her voyage, and the cruisers *Tsushima* and *Chitose* were sent to cut her off. After looking for her in Tsugaru Strait, they learned that she had been seen off Kunashiri, which indicated that she was bound for Soya Straits, further north. There, on August 20, the *Tsushima* found her coaling at the Russian port of Korsakovsk in the island of Sakhalin. The *NOVIK* came boldly out to fight, late in the afternoon of that day. She had a broadside of four 4.7-inch guns (180 pounds); the *Tsushima* one of four 6-inch guns (400 pounds). The action opened at 6,000 yards and closed with the *Tsushima's* retreat. The Japanese cruiser had been hit on the port water-line by a 4.7-inch shell which filled two compartments and gave her a serious list, compelling her to withdraw and effect repairs, but she had no casualties. The *NOVIK* was badly wrecked, with five hits on the water-line, and 4 killed and 13 wounded. She had to creep back to Korsakovsk, where the *Chitose* found her next day, abandoned and scuttled in shallow water, and fired a few shell into her. She was afterwards salvaged and repaired by the Japanese.

In certain respects this battle of August 10 or of the Yellow Sea was a curious anticipation of Jutland. The Russian Fleet when caught at a signal disadvantage, after the Japanese had sustained serious damage in the preliminary stage, was forced back into port without being annihilated. Togo, unlike Nelson, shrank from continuing the action till his enemy was destroyed. As his margin of advantage was so small and precarious, Togo's decision was justifiable, but in the light of events it seems that the really well-led, thoroughly disciplined and seamanlike navy, such as the Japanese undoubtedly was, had little to fear, and there was nothing to prevent Togo from maintaining a range of 2,000 yards, which should have been decisive and attended by no excessive risk. If Togo had closed, it is as certain as anything in human affairs can be, that he would have ended there and then the history of the Port Arthur fleet and prevented the despatch of any reinforcing fleet to the East by Russia.

Never again did the Port Arthur fleet attempt to offer battle, but it continued in existence, a constant menace. It had now shrunk from seven battleships to five, with one armoured cruiser and one protected cruiser (out of the original eight). Its other ships were at the bottom or interned. Its destroyer flotilla had fallen from twenty-five to twelve effective boats. Its spirit was broken and its men were taunted with cowardice by the garrison, not very justly, seeing that its

calamities were mostly due to political mismanagement. But it still floated.

The Japanese armoured ships in line, excluding the *Asama*, fired some 5,000 projectiles from guns of 12-inch to 6-inch calibre (about forty rounds per gun) and made about five or six per cent. of hits. The Russians fired 3,400 projectiles from 12-inch to 6-inch guns (about thirty-five rounds per gun) from their six armoured ships, and made thirty-two direct hits on Japanese ships, apart from hits on yards and rigging and apart from hits by splinters inflicted by nine other heavy shells. Thus they registered little more than one per cent. of hits. The Japanese projectiles were mostly high explosive and for that reason nearly always burst on striking armour without perforating.

The TZESAREVITCH had fifteen hits by 12-inch shell, but was in all vital respects intact, though her after-funnel was shattered and much picturesque damage had been done to her upper works. She had one hit below the water-line which forced in an armour plate and filled a small compartment with 150 tons of water. One 8-inch shell pierced the thin armour of a 6-inch turret. The RETVISAN had two hits on the water-line, one of which is believed to have penetrated, and she had numerous hits elsewhere, but her damage was mainly superficial. The PERESVIET was hit by thirty-nine projectiles; two 12-inch shells hit her fore turret and jammed it, and one of her 10-inch guns was put permanently out of action by a 6-pounder shell. She received several water-line hits, one of which forward caused her to ship 160 tons of water, and compelled the flooding of a compartment on the other side to bring her to an even trim. Splinters from a 12-inch shell damaged steam pipes in her central engine-room, and when she returned to Port Arthur she was exceedingly deep in the water.

The SEVASTOPOL was on fire seven times and was hit on her armour three times below the water-line, and each time the armour was so shaken that there was leakage. Four heavy shells struck her thin 6-inch armour; two high-explosive shells burst leaving only the trace of the hit, but two armour-piercing projectiles did considerable damage and destroyed an electric shell hoist. The unprotected portion of the ship was much knocked about, but the injuries were not really serious. The POLTAVA was hit by a heavy shell under her fore-turret and by a second just forward of her after-turret. The POBIEDA had numerous hits but, like all the other Russian

ships, had suffered no vital injury. The *ASKOLD*, *DIANA*, *PALLADA*, and *NOVIK* escaped with superficial injury and damage to funnels.

Of the hits on the Russian ships ten per cent. were on or near the water-line; and of the twelve Russian heavy gun turrets six were not hit, one was hit on the roof, three were hit and protected by the armour, and two were hit and put out of action.¹ In the Japanese armoured ships ten per cent. of the Russian hits were on the water-line and ten per cent. on the heavy gun positions. Armour on those positions stopped one direct hit and fragments of two other projectiles. The average of casualties caused by 6-inch shells was about the same per shell as that caused by 12-inch and 10-inch shells. The *Mikasa* showed twenty-two heavy hits and suffered much severer loss than any other ship in either fleet. The *Asahi* had a hit below the water-line. Details of the damage to their ships were suppressed by the Japanese, but were confidentially disclosed to the British Navy. Externally, the *Mikasa* had a battered appearance. In the second stage of the battle the muzzle was cut off the right 12-inch gun in her after-turret and the left gun was also out of action. By the efforts of the personnel all vessels in the Japanese Fleet were ready to engage again in forty-eight hours after the battle, when provisional repairs had been carried out. But the defective or damaged guns could not be so quickly repaired.

The following are the official figures for the loss in the two fleets in the main battle:

Killed. Wounded.				Killed. Wounded.			
<i>Mikasa</i>	..	31	94	<i>TZESAREVITCH</i>	13	50	
<i>Asahi</i>	..	0	2	<i>RETVISAN</i>	..	6	43
<i>Fuji</i>	..	0	0	<i>POBIEDA</i>	..	3	38
<i>Shikishima</i>	..	0	0	<i>PERESVIET</i>	..	13	77
<i>Kasuga</i>	..	0	0	<i>SEVASTOPOL</i>		1	63
<i>Nisshin</i>	..	16	15	<i>POLTAVA</i>	..	12	43
<i>Yakumo</i>	..	12	10	<i>PALLADA</i>	..	4	5
<i>Chinyen</i>	..	0	11	<i>ASKOLD</i>	..	11	48
<i>Idzumi</i>	..	0	1	<i>DIANA</i>	..	9	20
Torpedo Craft		10	8	<i>NOVIK</i>	..	2	7
		69	131 ²			74	394

¹ Sir R. Custance, *Ship of the Line in Battle*, p. 143.

² These are Japanese official figures.

Three Japanese armoured ships, beside the *Asama* which was only slightly engaged, escaped without any loss, and the *Fuji* was never hit. The large proportion of Russian wounded is curious.

A comparison of force for the larger ships seriously engaged (armoured ships and the larger protected cruisers) gives the following results:

	No. of Ships		Displacement.		Weight of Broadside from	
	Ar- moured.	Unar- moured.	Ar- moured. Ships. tons	Unar- moured. Ships. tons	Ar- moured. Ships. lb.	Unar- moured. Ships. lb.
Japanese	8	3	77,150	13,860	22,900	2,175
Russians	6	4	73,059	22,860	17,430	1,710

The broadside from the Japanese armoured ships consisted of sixteen 12-inch, one 10-inch, fourteen 8-inch and fifty-three 6-inch shells; from the Russian armoured ships¹ of fifteen 12-inch, eight 10-inch, and twenty-nine 6-inch shells. From the protected Japanese cruisers (*Chitose*, *Kasagi*, *Takasago*) it consisted of six 8-inch and fifteen 4.7-inch shells; from the Russian protected cruisers of seventeen 6-inch and four 4.7-inch projectiles. In addition to the above ships the Japanese had a mass of older vessels present which occasionally fired, but took little part in the battle. The utter inefficiency of the powerfully armed Russian protected cruisers is significant.

When the Port Arthur fleet steamed south-east on August 10, the destroyer *RIESHITELNY* was ordered to proceed to Chefoo with despatches, and then to steam to Kiaochau and disarm. She reached Chefoo though chased by two Japanese destroyers, *Asashiho* and *Kasumi*, which waited for her to come out, but when she did not, went in and after a parley with the Russian commander, carried her off. The reason for this action was that the Japanese doubted whether China was a strong enough neutral to disarm and detain her; and if not completely disarmed, the *RIESHITELNY* would have been a grave danger in the rear of the Japanese squadron before Port Arthur. The action taken in her case by the Japanese was precisely similar to that taken by the British in 1915 in the case of the German cruiser *Dresden*.

¹ One Russian 12-inch and five 6-inch guns were either out of action or left at Port Arthur and are not included.

It is now time to turn to the doings of the Vladivostock squadron, composed of the three armoured cruisers, *ROSSIA* (flag), *GROMOBOI* and *RURIK*, with the fast protected cruiser *BOGATYR*. This force (under Captain Reitzenstein at the outset and afterwards under Rear-Admiral Yessen) had orders to raid the Japanese coast and line of communications, with the object of compelling the Japanese Navy to make detachments. The Japanese strategy against it was simple and sound. From time to time when the situation at Port Arthur allowed, strong Japanese forces made demonstrations against Vladivostock, challenging the Russians to fight. But for the most part the Japanese relied on the menace of Togo's fleet lying between Port Arthur and Vladivostock to hold the Vladivostock force in check. They maintained two squadrons of protected cruisers under Kataoka with a number of torpedo craft, in the Straits of Tsushima. On February 9 the Russians put to sea and steamed to the neighbourhood of the Straits of Tsugaru, where they sank a small Japanese vessel, returning on February 14.

On February 24 they made a second sortie and steamed to Gensan in Korea, returning without having accomplished anything. They had a good opportunity of striking, had they only known it, as one of Kataoka's cruiser divisions, the 6th, consisting of the *Idzumi* (Rear-Admiral Togo), *Suma* and *Akitsushima*, had been sent off to Shanghai on February 17 to secure the effective disarmament of the Russian *MANDJUR*, which was lying there; and though the *Idzumi* and *Suma* were back early in March, the *Akitsushima* had to remain at Shanghai till the end of the month before her object was attained. Learning that the Vladivostock ships had been seen off Gensan, the Japanese Staff decided to demonstrate in force off Vladivostock, and sent there on March 2 Kamimura with a powerful force composed of the *Idzumo*, *Adzuma*, *Asama*, *Yakumo*, *Iwate*, armoured cruisers, and *Kasagi* and *Yoshino*, protected cruisers. They found the coast frozen up, except for a channel through the ice cut for the Russian ships, and after firing a few shells on March 6 at the forts at extreme range, returned. So effective was this demonstration that the Russian Squadron was ordered by Alexeieff not to go more than a day's run from Vladivostock, and it ceased for several weeks to exert any menace.

On April 16, Kamimura was ordered to carry out another demonstration and took with him five armoured cruisers as before (exchanging the *Asama* for the *Kasuga*), five protected



THE RUSSIAN ARMoured CRUISER "ROSSIA"

Flagship of the Vladivostock Squadron; was badly damaged in the battle of Aug. 14, 1904, but escaped and survived to serve in the Great War.



THE JAPANESE DESTROYER "SAZANAMI"

Type of a vessel which rendered extraordinary service in the war with Russia, and of the earlier destroyers of all navies. Of 360 tons, she steamed on trial 31 knots.

cruisers, a despatch boat, ten torpedo craft and mine-layers, and steamed to Gensan, arriving there on April 22. He left behind him there the steamer *Kinshu Maru* with four torpedo boats and proceeded on the 23rd for Vladivostock; but ran into fog which grew thicker as he steamed north, till in the afternoon of the 24th he turned. By a curious coincidence the Russian cruisers *ROSSIA*, *GROMOBOI* and *BOGATYR*, with two torpedo boats under Rear-Admiral Yessen, had left Vladivostock the previous day and on the 24th had detected the wireless signals of Kamimura's squadron near at hand, when Kamimura was going in the opposite direction, north.

Yessen stood on to Gensan and there destroyed a small Japanese steamer on the 25th. He caught and sank a second small steamer to the north and about midnight of the 25-26th came upon the *Kinshu Maru*. Owing to rough weather the four Japanese torpedo boats had left her to take shelter. She had on board 124 Japanese infantry; and the Russians gave them an hour to surrender. They refused for the most part, and when the period of grace expired the Russians fired a torpedo to which the Japanese replied by discharging their rifles until finally the *Kinshu Maru* was sunk by a second torpedo. Of those on board forty-five reached the Korean coast. According to the Japanese official account the Japanese were prepared to surrender and there was a misunderstanding. In any case the gallant behaviour of the Japanese soldiers made a deep impression at the time.

Kamimura on April 26, on his return to Gensan, learnt that the Russians had been off that port and at once hurried back towards Vladivostock to try to intercept them. He was too late, but he laid a number of mines off Vladivostock before he withdrew. He had been most unlucky; a little later, however, the Russians in their turn were visited with misfortune when, on May 15, the *BOGATYR* ran aground near Vladivostock and was so much damaged that though she was got off she took no more part in the war. On June 12, the *ROSSIA* (flag) *GROMOBOI* and *RURIK*, now under Vice-Admiral Bezobrazoff, left to attack Japanese communications in the Straits of Korea and during the morning of the 15th appeared west of Shimonoseki in foggy weather. The Japanese protected cruiser *Tsushima* on patrol duty sighted them at 7.40 a.m. and, despite attempted jamming of her signals by the Russian ships, gave the alarm by wireless. She then attempted to maintain contact, but from time to time lost

the Russians in rain and fog though she heard at moments the sound of firing.

What had happened was that the Russian cruisers had struck the Japanese line of communications and the service of transports going and coming from the Yellow Sea. The *Idzumi Maru* with invalids coming from Dalny was first sighted, and when she attempted to escape was fired upon and sunk. The Russians took 105 prisoners from her and 7 men were killed and 25 wounded in her. Next the Russian squadron came upon the large steamer *Hitachi Maru*, with 1,000 troops and eighteen 11-inch howitzers for Port Arthur on board—the all-precious Japanese siege train—and immediately fired upon her as she attempted to escape. Of her officers several were killed, including three Englishmen who stood gallantly to their duty to the last; of the troops on board many committed suicide, but the ship did not sink till 3 p.m., though she had been attacked at 10 a.m. In all, 189 men were saved of those on board her by Japanese fishing vessels. About the same time the steamer *Sado Maru* with 600 non-combatants and 400 soldiers and crew on board was sighted by the Russians, who gave those on board forty minutes to quit the vessel. This was reasonable, as the risk to the cruisers grew with each minute's delay; the non-combatants had quitted her when the time expired and two torpedoes were fired at her. Without waiting to see whether she went down the Russians steamed off, but the *Sado Maru* still floated and was ultimately salvaged.

Kamimura was at Tsushima with the four armoured cruisers, *Idzumo*, *Adzuma*, *Tokiwa* and *Iwate*, the *Naniwa* protected cruiser, and eight torpedo boats, when he received the alarm and issued a general order for the stoppage of traffic. He steamed towards the scene of action and at once ran into thick fog, in which he groped in vain for the Russians. Finally he proceeded northwards to try to cut them off, but failed as Bezobrazoff had steered for the Tsugaru Straits, making a wide detour and seizing en route the British steamer *Allanton* with a cargo of coal for Yezo. Thence the Russians safely returned to Vladivostock on June 20. This cruise was the only one which had any serious effect in the war, as the loss of the heavy 11-inch howitzers in the *Hitachi Maru* was a great disaster. While the Russian cruisers were at sea three Russian torpedo boats raided the northern coast of Japan and captured or destroyed four small vessels.

Special precautions were taken after this unfortunate affair

to protect the Japanese transports, though it was not possible to give them convoy. Indignation against Kamimura in Japan was general, and he was certainly not a lucky commander, but his task was one of extraordinary difficulty, and he discharged it faithfully and zealously. The Russians with the armed steamer *LENA* and eight torpedo boats, as well as the armoured cruisers, left Vladivostock on June 27 to raid Gensan, and there destroyed two little Japanese vessels, but lost one of their torpedo boats which was damaged by running ashore. The three cruisers then turned south and on July 1 were close to the Straits of Tsushima when, at 6.40 p.m., Kamimura with his four armoured cruisers and five other cruisers sighted them and gave chase. Night fell before he could close and attack them, and in the darkness they vanished. They regained Vladivostock on July 3, seizing on the way the British steamer *Cheltenham* which had Japanese railway material on board. On July 17 yet another sortie was made, this time under Yessen. The three cruisers steamed through the Tsugaru Straits on July 20 and were north of Tokio Bay on the 22nd.

They cruised in that neighbourhood till the 25th when, short of coal, they returned having captured nine vessels, five of them neutrals, and having sunk seven of their captures. Among the vessels sunk was the British steamer *Knight Commander* with railway material for Japan, and the German steamer *Thea* with a cargo of fish. The Russians returned to Vladivostock on August 1 by the Tsugaru Straits. Kamimura, during this sortie, was ordered to keep his force between the Vladivostock and the Port Arthur ships, and in case the Vladivostock ships attempted to join the Port Arthur force, to fall back before them on the Yellow Sea and finally give battle when off Shantung. This enabled Togo to reinforce him, or him to reinforce Togo as conditions might require, and was thoroughly judicious strategy.

On Vitgeft's departure from Port Arthur the *RIESHITELNY* by a telegram from Chefoo warned the Vladivostock ships that he was on his way to Vladivostock by the Straits of Korea. Yessen received the news on August 11 and next day left with the *ROSSIA*, *GROMOBOI* and *RURIK* for the Straits, unaware as yet that the Port Arthur fleet had been beaten and forced back. At daybreak of August 14 he was thirty-six miles north-east of Tsushima when Kamimura's four armoured cruisers were sighted, having just returned from a cruise off Quelpart, where the Japanese admiral had gone to try to intercept

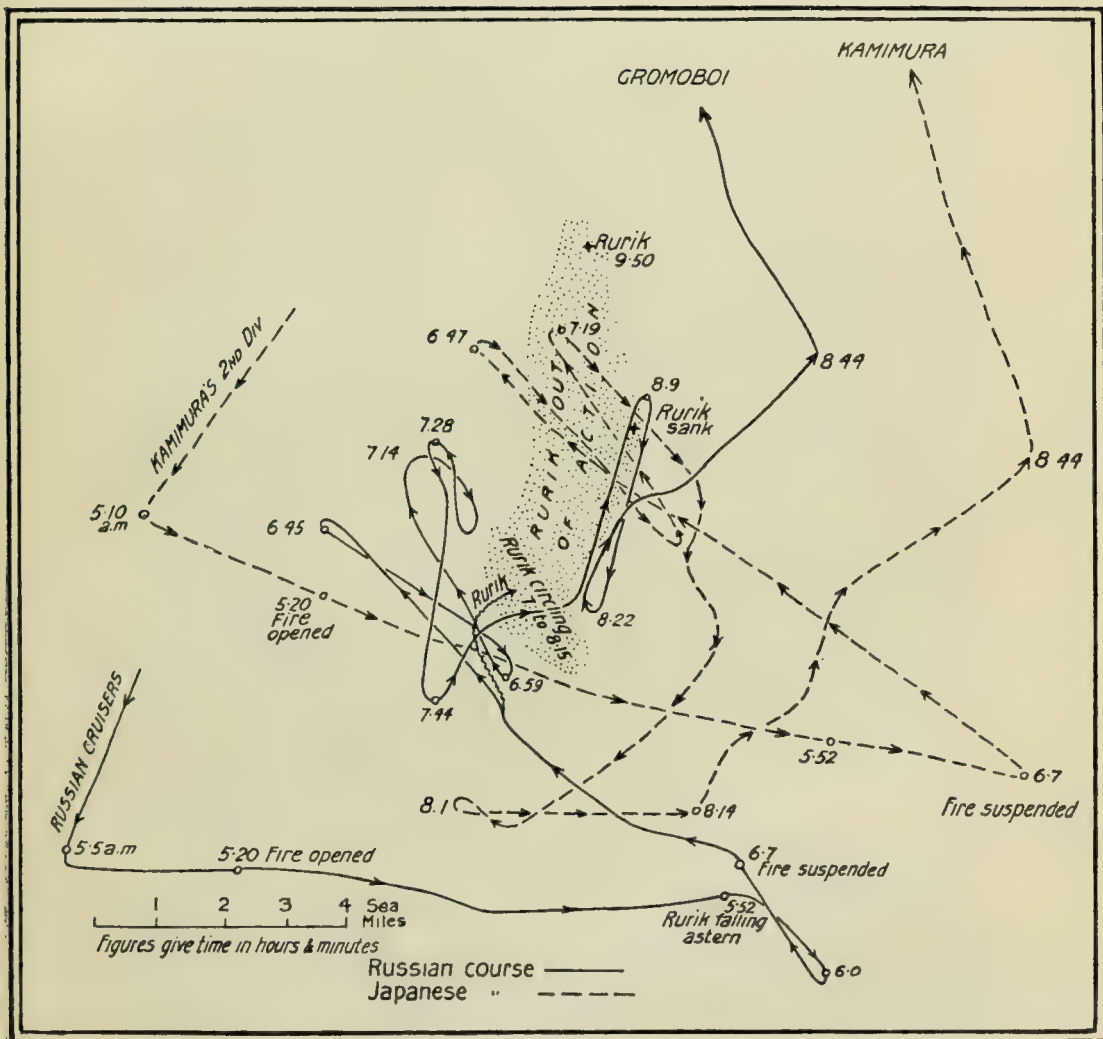
fugitive ships from Port Arthur. Kamimura had with him the *Idzumo* (flag), *Adzuma*, *Tokiwa* and *Iwate* (flag of Rear-Admiral Mizu), and expected to come upon the Russian squadron from Vladivostock. At 4.25 a.m. lights were seen to the south of him, and he steered towards them. As the morning mist lifted the forms of Yessen's ships emerged where the lights had been. The day was clear and there was a gentle south wind. At 5 a.m. Kamimura was six miles from the Russians and on their line of retreat to Vladivostock. He gave the alarm by wireless, increased speed, and hoisted the battle flags in his four ships. (See Table XVII.)

Yessen has been criticised for not timing his arrival in the Straits during the hours of darkness. But if he wanted to meet Vitgeft it was advisable for him to be there when it was light, when the range of vision was considerable, as no rendezvous with the Port Arthur force had been concerted. When he saw the Japanese squadron, he realised that the sortie from Port Arthur had failed and that, as his enemy was between him and Vladivostock, he had little chance of escaping without a battle; he was so inferior in force that he could do nothing but try to bolt. About 5.20 Kamimura's squadron opened fire at a range of 9,200 yards. Both squadrons were going almost due east; the Japanese east-south-east to close the range; and the Russians were to starboard and slightly astern of the Japanese. The course of the two squadrons was thus slowly converging, and, as the range fell, first the Japanese 6-inch guns and then the 12-pounders came into action. The Russians replied with energy. The broadsides of the two squadrons were as follows:

		8-in.	6-in.	4.7-in.	12-pdr.	Weight of one round.
Japanese ..	..	16	27	0	24	6,988 lb.
Russians ..	..	6	21	3	16	3,168 „

The Japanese, owing in part to the superior disposition of their guns, had an enormous advantage in weight of metal, and they were also much better gunners. An artillery fight in such conditions could have only one result. The *Idzumo* and *Iwate* fired at the *RURIK*; the *Adzuma* at the *ROSSIA*; and the *Tokiwa* at the *GROMOBOI*. At 5.52 the range had fallen to 5,500 yards, and the *RURIK* was fast dropping astern.

At this point of the action the Russians turned away to starboard. Fires could be seen burning fiercely in all the three Vladivostock cruisers. Kamimura was going about a



PLAN 16

[p. 220

BATTLE OF JAPAN SEA, AUG. 14, 1904
Kamimura's Defeat of Yessen

knot faster than they, as they were handicapped by the slow RURIK, and it was because he gained upon them and headed them off that they turned. If he had eased down, maintained a position on their beam and slowly closed in, probably all would have been over quickly. His predominance in gun force was so marked, the ascendancy he had already gained was so evident, that a Russian victory was out of the question. He knew that Togo had defeated the Russians in the Yellow Sea three days earlier without losing a single Japanese ship, so that he could afford to take reasonable risks. But he preferred cautious tactics. Yessen's position was becoming so desperate that at 6 a.m. the ROSSIA and GROMOBOI turned sixteen points to starboard, away from the Japanese, inverting the direction of their movement, and thus as they returned enabled the RURIK, which was far astern, to fall into station.

The Japanese did not follow Yessen's move for some minutes, and then turned to port, away from the Russians, opening the range to about 9,000 yards. Kamimura thus gave his shaken enemy a respite, for fire had to be suspended for some minutes until the Japanese, steering a north-west course generally parallel to the Russians but slightly converging on them, were again able to open. At this moment, the RURIK's steering gear broke down, and, out of control, with her rudder jammed over to port, she turned to starboard towards the Japanese and was subjected to their concentrated fire at 6,000 yards. She continued circling, and with her tiller and steering engine compartments filling from shot holes, nothing could be done to right her.

At 6.43 Yessen turned the ROSSIA and GROMOBOI to give her aid; though in the circumstances the sounder course would have been for him to do what Hipper did at the Dogger Bank and leave her to her fate, as then he would have been certain of getting away with the two faster Russian cruisers. The Japanese followed Yessen's movements and for some minutes engaged him at 6,000 yards. After this for an hour the range was opened and closed again, varying between 7,000 and 5,000 yards as each side marched and counter-marched about the damaged RURIK. The ROSSIA was now badly on fire and most of her guns were out of action; the GROMOBOI appeared to be much damaged; and the RURIK as she circled was slowly sinking with her stern heavily down.

The Japanese had not escaped unscathed; an 8-inch shell had caused a violent explosion and great conflagration in the *Iwate*. About 7.20 the Japanese poured a concentrated fire

into the RURIK at ranges from 4,200 to 6,000 yards and put all her guns except two or three out of action; and at 8.22 a.m. Yessen turned away finally northwards, abandoning the RURIK. His own flagship, the ROSSIA, was shrouded in dense smoke from a great fire in her hull. Kamimura followed the ROSSIA and GROMOBOI, as in the last series of manœuvres he had allowed them to get to the north of him, though he had the advantage in speed. The old Japanese cruisers *Naniwa* and *Takachiho* had arrived and with their batteries (each five 6-inch quick-firers on the broadside) were firing vigorously into the RURIK.

The closing act of the engagement was a running combat at long range between Kamimura's four armoured cruisers and the two damaged Russian ships. The Russians appear to have steamed almost as fast as the Japanese, and Kamimura made no very determined effort to close with them. At 9.30 the *Adzuma*, second in his line, had trouble with her engines and for some time dropped astern; twenty minutes later the Russians ceased fire and thereafter only discharged an occasional shot. In the Japanese ships the gun crews began to show exhaustion and the rate of fire diminished markedly. At 10, Kamimura was informed that ammunition in the *Idzumo* was running low,¹ and as the ROSSIA and GROMOBOI were maintaining their speed, he decided to turn and devote the rest of his munitions to the destruction of the RURIK, not being satisfied that the two old Japanese cruisers would be able to deal with her. It was a mistake, for an hour after he had turned (at 11.15) he received a wireless message to the effect that she had sunk at 10.42 a.m.

Thus the engagement was in many respects similar to that fought in 1915 on the Dogger Bank. The oldest ship in the weaker squadron was destroyed; the better and more modern ships were able to escape. In either case too much attention was given to the destruction of a vessel which was completely beaten. Kamimura's tactics were severely criticised at the time, but he was so good, resolute and energetic an officer that he must have supposed it his duty to fight at long range. Once more the comparative uselessness of the torpedo at that date was illustrated. One was fired by the RURIK at the *Iwate* without effect; had the weight which in Kamimura's

¹ She carried eighty rounds per 8-inch gun and 150 per 6-inch gun. It was reported to the admiral that three-quarters of her ammunition had been expended, but it afterwards turned out that allowance had not been made for ammunition at the gun positions. Actually she had fired rather more than half her supply. Japanese official information.

squadron was devoted to eighteen tubes and their 18-inch torpedoes been given to ammunition, the whole Vladivostock squadron might have been destroyed. But as it was, the fighting temper of the Russian crews was so shaken that never again did they venture to try conclusions with the Japanese.

The losses were:

JAPANESE.	Killed.	Wounded.	RUSSIAN.	Killed.	Wounded.
<i>Idzumo</i> ..	3	16	ROSSIA ..	47	153
<i>Adzuma</i> ..	0	8	GROMOBOI	93	166
<i>Tokiwa</i> ..	0	3	RURIK ..	192	239
<i>Iwate</i> ..	40	37			
<i>Naniwa</i> ..	2	4		332	558
<i>Takachiho</i>	0	13			
	45	81	In addition 625 prisoners taken from the RURIK.		

The *Idzumo* received over twenty hits; the *Adzuma* ten; the *Iwate* two hits by 8-inch shells and three others by guns of smaller calibre; and the *Tokiwa* three. The *Naniwa* and *Takachiho* each sustained one hit; so that perhaps the total made by the Russians was between forty and fifty, from the 2,000 rounds of 8-inch and 6-inch ammunition which they are estimated to have discharged. This gives a percentage of 2.5, and in view of their great gunnery inferiority and the considerable range points to respectable shooting. The heavy losses of the GROMOBOI and RURIK were probably due to the absence of protection for most of their broadside guns, and to the fact that the gun crews for the smaller weapons were kept at action stations. The hits on the Russian ships which survived were thirty-one on the ROSSIA's hull, including four on her armour, and eleven near her water-line; and twenty-seven on the GROMOBOI, including four on her armour and six near the water-line. It is calculated by Sir R. Custance that the total of all hits on the ROSSIA and GROMOBOI, including those on masts, yards, boats and funnels, was ninety apiece with 150 on the RURIK. The Japanese fired 958 8-inch and 4,528 6-inch projectiles¹ which gives six per cent. of hits, or just double the percentage obtained by the Russians.

The damage inflicted on the ROSSIA and GROMOBOI was such as could be easily repaired. Captain Klado, who saw them, states:² "At first sight all produced the impression of

¹ The total carried was about 10,500, including the *Naniwa* and *Takachiho*, which fired between them 761 6-inch shells. These are reckoned in the figure of 4,528 given.

² *The Russian Navy in the Russo-Japanese War*, pp. 146-8.

a dreadful wreck, but after a minute examination I was forced to declare that in reality there was no damage of a very serious character. . . . A month after the battle all repairs were completed and that, too, with the poor resources which Vladivostock possessed." In the *ROSSIA* all but four of the guns of 8-inch and 6-inch calibre were irreparably damaged; in the *GROMOBOI*, which had better armoured protection, three were disabled. The *Iwate* was greatly damaged by a hit from an 8-inch shell which she sustained and which caused all her heavy casualties (77). It entered by the roof of a 6-inch casemate, detonated a large quantity of ammunition, and put three 6-inch guns permanently out of action beside wrecking the neighbouring part of the ship. It was probably the most deadly shot of the naval war.

By breaking off the two actions of August, Togo and Kamimura transgressed the "cardinal rule of warfare that once battle is accepted no effort should be spared to make the result decisive."¹ In Kamimura's case the transgression had no grave consequences. The total mischief done by the Vladivostock squadron during its period of activity was to sink or capture thirteen Japanese and six neutral steamers, and damage one Japanese transport. Only in the case of the *Hitachi Maru* and the siege train was serious trouble caused to the Japanese. Moreover, the Russians had extraordinary good luck; twice at least they were saved by fog when Kamimura was close to them.

¹ *British Official History*, i, p. 410.

CHAPTER XIII

Last Hours of Port Arthur Fleet—"Asahi" Mined—203 Metre Hill Stormed—Russian Ships put out of Action—Japanese Prepare to Meet the Baltic Fleet—Rojestvensky and his Movements—North Sea Incident—Use of Neutral Bases—His Message to the Russian Government—Nebogatoff's Strange Squadron—Baltic Fleet Steams towards Tsushima—Battle Orders—Japanese Wireless Heard.

THE destruction of the Port Arthur fleet had yet to be accomplished. It was left to the Japanese Army, and as far as was practicable the powerful Japanese warships were spared the work of cruising in the mine-sown waters around the Kwangtung peninsula, though they were held ready at the Elliot Islands base. Torpedo craft and old vessels watched the fortress, but all possible care could not prevent the occasional loss of vessels. On August 25, during the first assault on Port Arthur, the *Kasuga* and *Nisshin* shelled at long range the Russian works on the extreme east flank of the Port Arthur front. On September 2 the destroyer *Hayatori* struck a mine and sank rapidly with the loss of 20 of her crew; on September 18 the old armoured ship *Heiyen* struck a mine amidships and was lost with 197 officers and men, only four of those on board escaping with their lives. On September 28, however, Japanese naval guns, which had been disembarked, opened from the batteries on the Russian ships, and made several hits on them.

On October 1 11-inch howitzers, which had been taken from the Japanese coast fortifications, joined in this attack from the siege batteries, but the Russians replied by shifting their vessels to anchorages which were not within view of the Japanese. Now and again there were alarms of Russian sorties, and on October 11, nine Russian destroyers steamed out south-west of Port Arthur and shelled the Japanese troops from the rear. On October 26, the precious battleship *Asahi* had a very narrow escape. Near the Elliot Islands

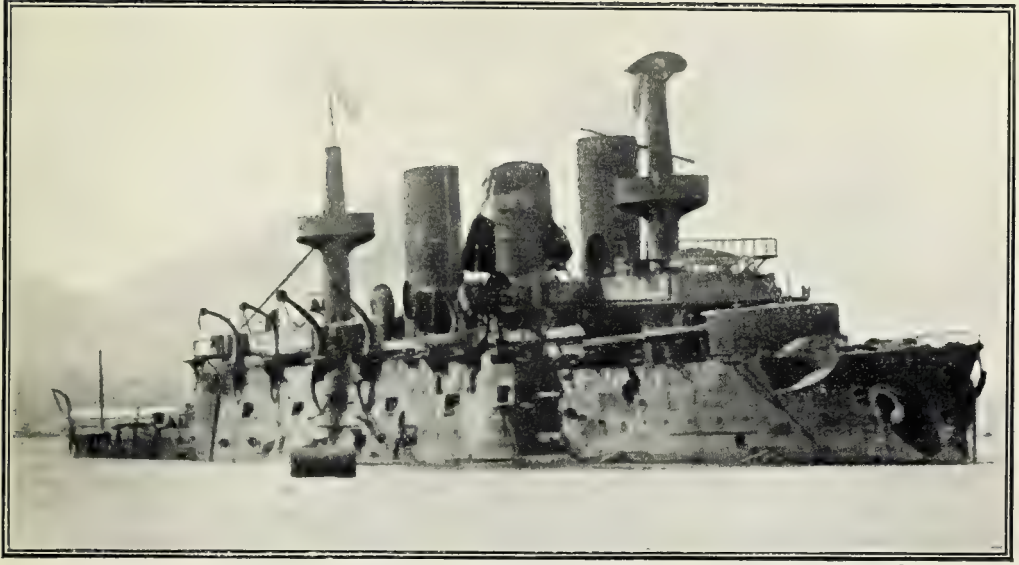
she struck a floating mine, but it exploded abreast of her armour and did little damage. She had, however, to be detached for repairs, and the incident strengthened Togo's anxiety for the immediate capture of Port Arthur. This was the more necessary as a large Russian reinforcing fleet under Rojestvensky was now very slowly moving towards the east.

In Port Arthur the naval command had been placed in the hands of Rear-Admiral Viren, an energetic and gallant officer, who decided that a sortie was impossible owing to the shortage of ammunition, the number of guns that had been landed, and the loss of important ratings among the Russian crews. But for the help of the Russian Navy, there can be no doubt whatever that the fortress would not have been able to hold out. On November 6 the Japanese gunboat *Atago* was wrecked, but without loss of life. As the Japanese had no military balloons available,¹ Nogi, commanding the 3rd Army, determined at whatever cost of life to storm 203-Metre Hill, which gives good observation over Port Arthur harbour and would enable the Japanese heavy guns to complete the destruction of the Russian Fleet. The assault began on November 27 and continued thenceforth almost without intermission. This fearful encounter closed in the afternoon of December 5, when a Japanese naval observation point was at last established on the summit and the fire of the 11-inch siege howitzers was turned on the Russian ships. Thus land power was used to do the work which sea power might have accomplished in the battle of August 10. One after another the Russian ships were sunk by concentrated attack till only the SEVASTOPOL was left. She steamed outside the harbour and anchored close in shore, behind boom defences and various obstructions, where the Japanese guns could not get at her; and she had with her the gunboat OTVAJNY and three destroyers.

Between December 9 and 16 she was attacked night after night by thirty Japanese torpedo boats, which fired between them ninety-eight torpedoes at her. Of these only four took effect, and none of them inflicted disabling injuries on her. The Russian destroyer SERDITY was put out of action by one hit, and three others caused bad leaks in the SEVASTOPOL's hull. The Japanese casualties were two boats (*Nos.* 42 and 53) sunk, 34 killed, and 17 wounded. The attacks, though delivered with extreme courage, were thus amazingly unsuccessful, and it has been suggested² that she might have been

¹ The captive balloon which had been used earlier was out of action.

² Custance, *Ship of the Line in Battle*, p. 164.



THE RUSSIAN BATTLESHIP "PERESVIET" DISABLED IN PORT ARTHUR

She was sunk by hits from the Japanese 11-inch howitzers which bombarded Port Arthur, directed by an observation party on the summit of 203-Metre Hill. After the fall of Port Arthur the Japanese raised and repaired her.



THE RUSSIAN BATTLESHIP "RETVISAN" IN PORT ARTHUR DISABLED

Like the *Peresviet* she was sunk by the shells from the big Japanese howitzers, and she afterwards was raised and took part on the side of the Allies in the Great War.

boarded and cut out with less loss of life. The SEVASTOPOL was finally taken by her captain, Essen, into deep water, when the surrender of Port Arthur took place, on January 2, and was there sunk. Of the Russian destroyers six were sent out before the fall of the fortress and reached neutral ports where they were disarmed and interned. In these last weeks of the naval war in the Yellow Sea the old Japanese cruiser *Saiyen* on November 30 ran on a mine and sank with the loss of 38 officers and men; and the fine cruiser *Takasago* in the night of December 12-13 was mined and sunk with a loss of 274 officers and men. Two days earlier the *Akashi* struck a mine but, though she was for some hours in extreme danger, she was got safely into Dalny and there repaired.

As the net result of the Port Arthur campaign a Russian force of seven battleships, one armoured cruiser, five protected cruisers, twenty-nine destroyers, mine-layers, and torpedo gunboats, with numerous other small craft was destroyed, captured or driven into internment, and lost to Russia either finally or for the term of the war. In addition, the Vladivostock squadron had one of its cruisers and four torpedo boats sunk, while two more of its cruisers had been rendered unserviceable, the GROMOBOI having run on a rock and sustained great damage just after her repairs had been completed, following the engagement in the Japan Sea. The Japanese loss down to this point had been two battleships, two protected cruisers, two destroyers, four torpedo boats, and six old vessels, gunboats and small cruisers. All the damaged ships at Port Arthur fell into Japanese hands and preparations were at once made to raise certain of them and recondition them. But this would necessarily be a work involving time and there was no prospect of their playing any part in the war.

The Japanese warships, so soon as the operations at Port Arthur released them from duty, were sent back to the Japanese dockyards for thorough overhaul and repair, that they might be ready to meet the Russian Baltic Fleet. On December 25, Togo left the Elliot Islands base, placing Vice-Admiral Kataoka in command of a force of seven cruisers, three auxiliary cruisers, five destroyers, one torpedo boat division and nine armed vessels to give any aid to the army that was needed. The reconditioning of the battleships and armoured cruisers was taken in hand with the extremest energy. Machinery and boilers were overhauled and worn guns were replaced. After the armoured ships followed the

cruisers and torpedo craft. The whole shipbuilding power of Japan was exerted to the utmost, and the work went rapidly forward. Meantime Togo in Tokio conferred with the Supreme Command, which was in the hands of Admiral Count Ito, and settled the plan of operations.

The Staff decided to concentrate the main force in the Straits of Korea and there to await the Russians. To prevent vessels from leaving or reaching Vladivostock Rear-Admiral Mizu was sent to the Straits of Tsugaru with the *Adzuma* and *Asama*, and on January 5 took over command there, having also under his orders two old vessels and the 4th Torpedo Boat Flotilla. As he was wanted for service in the main fleet he was replaced on January 22 by Rear-Admiral Shimamura. The Japanese watch was extended to the Soya Straits so that access to Vladivostock now became impossible without an action. This was the first long-range blockade of the type subsequently carried out by England against Germany.

To ascertain whether the Russians were preparing secret bases and to intimidate them, on December 2 the Japanese auxiliary cruisers *Hongkong Maru* and *Nippon Maru* steamed to Singapore, Batavia and Cambodia, returning to Sasebo on January 18, 1905. About the same time the protected cruiser *Niitaka* examined the south coast of China and visited Luzon, returning to Sasebo on January 11. Finally on February 27 Vice-Admiral Dewa with the fast protected cruisers, *Kasagi* and *Chitose*, the auxiliary cruisers, *America Maru* and *Yawata Maru*, and the special service ship *Hiko-yama Maru*, once more examined the southern China coast, Hainan and the Annamese coast, actually visiting Kamranh and Van Fong Bays which a few weeks later were used by the Russians. On March 15 he was at Singapore and thence returned having discovered no trace of Russian colliers or store ships.

These movements alarmed the neutrals supplying the Baltic Fleet with coal and provisions and thus added greatly to the difficulty of the Russian task. Dewa regained Masampo, in the extreme south of Korea, which was now the main base of the Japanese Fleet, on April 1. At Masampo the Japanese were completely lost to the world, though reports that they were there reached Rojestvensky. The place was as carefully isolated as was Scapa Flow, and Sylvia Basin and Douglas Inlet afforded vast sheltered sheets of water which formed one of the best harbours in Asia.

There Togo proposed to wait the arrival of his adversary. His fleet had received three new destroyers completed by the Japanese yards, one refitted Russian destroyer (in the RIESHITELNY, renamed *Akatzuki*) and one torpedo boat, besides the light cruiser *Otowa*, completed at the end of 1904. The *Akashi* was still absent undergoing repairs, but rejoined before the battle was fought. All the other effective Japanese units were now ready and were probably in better condition than at the outbreak of war, as many minor improvements had been carried out, and provision was made for carrying a large additional supply of ammunition in most of them.¹ The fleet was frequently exercised by Togo who arrived on February 21, until in manœuvres and long-range firing its war-seasoned crews showed extraordinary proficiency.

In April, Vladivostock was thoroughly mined, so as to permit all possible force to be withdrawn south for the struggle with the Baltic Fleet. Only half-a-dozen vessels of insignificant military value were left to watch the Tsugaru Straits. The Japanese believed in concentration and they had good reason to disregard the few Russian ships left at Vladivostock. On May 23 the *GROMOBOI*, which had gone out to test her wireless, struck a mine and sustained great damage. No attempt was made by the Vladivostock cruisers to give Rojestvensky any support. After the North Sea incident the Japanese Press very cleverly spread reports suggesting that the Japanese Navy was preparing torpedo attacks against the Russians even at remote points.

As for the Russian reinforcing fleet, which was generally known as the Baltic Fleet, though its official title was the Second Pacific Squadron, the first portion of it left Libau on October 15, 1904, under Vice-Admiral Rojestvensky, who was fifty-seven years of age, and was regarded as one of the best officers in the Russian Navy. He had with him seven battleships (*KNIAZ SUVAROFF*, *IMPERATOR ALEXANDER III*, *BORODINO*, *OREL*, *OSLIABIA*, *SISSOI VELIKI*, and *NAVARIN*); two old armoured cruisers (*ADMIRAL NAKHIMOFF* and *DMITRI DONSKOI*); four light cruisers (*AURORA*, *SVIETLANA*, *JEM-CHUG*, *ALMAZ*); seven destroyers, and nine auxiliary and store ships. A contract had been concluded by the Russian Government with the German Hamburg-Amerika Company, by which that company undertook to coal the Russian ships.

¹ Japanese information is that the supply of ammunition was increased as the result of the operations in the war, but it is not quite certain that the increase had been carried out in all cases by the date of Tsushima.

Before he left the Baltic, Rojestvensky showed extraordinary nervousness about the possibility of Japanese torpedo attack, and on passing through the Great Belt he ordered the channel to be swept for mines, though owing to the inexperience of his crews the order could not be properly carried out.

His ships seem to have made it a practice to fire at any craft which they saw and which looked at all like a torpedo vessel. When off the Skaw they shelled Norwegian steamers, but without hitting them. During daylight on October 20, the Russian auxiliary steamer KAMCHATKA fired at the Swedish steamer Aldebaran, the French sailing ship Guyane and the German trawler Sonntag. In the night of October 21-22 Rojestvensky's fleet steamed right into the midst of the British trawler fleet on the Dogger Bank, the presence of which was well known and noted in the *Sailing Directions*, and about 1 a.m. opened fire, professing that there were Japanese torpedo boats among the trawlers. The fire was maintained for several minutes. One trawler, the Crane, was sunk, and five more were hit. Two British fishermen were killed and 6 were wounded. What caused the more astonishment and indignation was that, when the Russians were aware they had made a mistake, they gave no aid to the trawlers and did not send in a ship to a British port to report the mistake and apologise for it. Thus they violated one of the great customs of the sea. In their confusion the Russian vessels turned their guns on one another, and the AURORA was hit five times and had her chaplain mortally wounded.

The danger to non-combatants of a fleet, which thus fired recklessly on vessels that it happened to meet when it was thousands of miles from any possible adversary, was most serious. But the British Government was anxious to avoid a breach with Russia, and in the end, after a promise had been given by the Russian authorities that there would be no more of these attacks on neutral shipping, the matter was referred to an International Commission. This sat at Paris from December 1904 to February 1905, and issued a "white-washing" report exculpating Rojestvensky, but regretting that he had not informed the British Government of his mistake. Compensation to the amount of £65,000 was paid to the victims and their relatives by the Russian Government.¹

Meanwhile, Fölkersam, with a section of the Baltic Fleet, had coaled in the Channel outside territorial waters, off Brighton,

¹ See Oppenheim, ii, pp. 7-8. For bases used by the Russian Fleet see table at end of chapter.

while Rojestvensky with the battleships put into the Spanish port of Vigo, where he was permitted to take 400 tons of coal on board each of his larger ships. This was a questionable proceeding on the part of the Spanish authorities, but the voyage of the Baltic Fleet would have speedily closed had neutrals observed the principles of international law and refused to allow their waters and ports to be used as bases for hostile operations by either of the belligerents. From Vigo Rojestvensky went to Tangier. There, according to a previously arranged plan, the fleet was to divide, the heavier ships, which were too deep in the water to use the Suez Canal, proceeding by the Cape to Madagascar while the lighter ships under Rear-Admiral Fölkersam steamed by Suez to the same point. Rojestvensky systematically used neutral waters for coaling, filling up his bunkers at Dakar and the Gaboon River. When neutrals objected or Japan protested to them, he made a show of yielding to their complaints or declared that his ships were really outside territorial waters. The French authorities were easy-going enough in their dealings with him, but, even so, he repeatedly disregarded their requests, and if Japan had been disposed to press matters the French Government would have found itself involved in serious difficulties as the result of his conduct.

Rojestvensky was allowed to use French harbours in Madagascar and Cochin China as if they had been Russian naval bases and to spend weeks there. Nothing of the kind had ever been seen before in modern naval war. The rule usual at that date—that a neutral should not permit the stay of a belligerent vessel for longer than twenty-four hours in his ports—was regularly transgressed by the Russians and by the neutral Powers dealing with them. In fact the Baltic Fleet ships scarcely ever remained less than forty-eight hours in a neutral port; on the coast of Madagascar they were in French waters for nearly three months and on the Cochin China coast for nearly a month.

After Rojestvensky's and Fölkersam's squadrons followed a detachment under Captain Dobrotvorsky of two cruisers (OLEG and IZUMRUD), five destroyers (of which three from various defects had to be left behind on the voyage to Madagascar) and three auxiliary cruisers or armed ships. The whole force effected its concentration at Nossi Bé in Madagascar on March 16, 1905, long after Port Arthur had fallen.

In mid-January, 1905, the Russian Government itself seems to have realised that it was setting Rojestvensky and

his fleet a task which they could not perform. It therefore telegraphed a statement of its views to him.¹ It held that in consequence of the fall of Port Arthur the Baltic Fleet would have to perform a mission of the highest importance to secure command of the sea and cut the communications of the Japanese armies in Manchuria. If Rojestvensky thought his force too weak to fulfil this task then all available ships would be sent to reinforce him. He was asked to state his opinion, and he did so in the following uncompromising message:

“ I have not the slightest prospect of recovering command of the sea with the force under my orders.

“ The despatch of reinforcements composed of untested and in some cases badly built vessels would only render the fleet more vulnerable.

“ In my view the only possible course is to use all force to break through to Vladivostock and from this base to threaten the enemy's communications.”

In conclusion he told the Russian Government that the long stay in Madagascar had injured the health and spirits of the crews, and added that his own health was bad and that he wished to be relieved. As the Spanish Government had neglected Cervera's warnings, so the Russian Government ignored Rojestvensky's advice. It was afraid to abandon an enterprise which had been undertaken when conditions were totally different.

So long as Port Arthur held out and paralysed an important part of the Japanese Navy, it was reasonable to send out a reinforcing fleet. But when Port Arthur fell and the whole strength of the Japanese could be turned against the reinforcing fleet, Rojestvensky's mission became a desperate one. The only base remaining to Russia in the Far East was Vladivostock. This place the Russian Staff before the war had regarded as being unsuited for the operations of a large fleet. It was probably wrong in that view, but since February, 1904, many things had changed. The destruction of the Port Arthur Fleet had freed the hands of the Japanese. They had no more Russian reinforcements from Europe to fear. If they met the Baltic Fleet in battle they had no doubt as to the result. If it got past them in fog they could contain it as they had contained the Vladivostock cruisers earlier in the

¹ *Rasplata*, p. 379.

war, and paralyse its action without any great difficulty.¹ There would have been no need to besiege and storm Vladivostock as they had besieged and tried to storm Port Arthur.

Moreover, the pressure on the Siberian railway was such, in view of the large Russian armies in the East, that no supplies for Rojestvensky's fleet could be sent by this route to Vladivostock. Just as the arrival of Cervera's squadron at Santiago actually increased the difficulties of the Spanish Army in Cuba, so the arrival at Vladivostock of Rojestvensky's large and ill-found force would have increased the troubles of the Russian armies in Manchuria. The problem of supplying coal was insoluble. The Russian Government ought to have recognised these facts and have recalled the Baltic Fleet in January. If Rojestvensky had been a stronger man he would have acted on the principles laid down by Napoleon² and have resigned sooner than lead his officers and men to certain defeat and useless slaughter. His voyage to the Far East became more than ever purposeless after the Russian defeat on land at Mukden, the general result of which was known on March 10.

Ignoring Rojestvensky's warnings, the Russian Government in January, 1905, determined to send out yet another squadron under Rear-Admiral Nebogatoff, composed of old vessels—the ancient battleship NICHOLAS I, the old armoured cruiser VLADIMIR MONOMAKH, and the small coast-defence ships GENERAL-ADMIRAL APRAXIN, ADMIRAL SENIAVIN and ADMIRAL USHAKOFF, with seven auxiliary vessels. This force left Libau on February 15, 1905, with orders to proceed by the Suez Canal and join Rojestvensky off Madagascar. For that its movements were too slow.

The concentration of the maximum force for a great battle is always a sound principle, and even old ships may be of service. The Japanese old vessels played an important part throughout the war, but then they were manned with admirable crews and commanded by experienced officers. Nebogatoff's squadron, as it was said at the time, was an archæological museum, and its officers and crews were of very poor quality. The men for the most part were peasants without any training. Rojestvensky, who was the best judge of Russian requirements, was strongly against the

¹ For that reason some Russian officers believed that the Japanese would give Rojestvensky a "free pass" into Vladivostock, in order to capture his fleet there. *Rasplata*, p. 460.

² See page 123.

despatch of this squadron, and flew into a passion when he knew that it was coming out to embarrass him. His long stay at Madagascar was not due to any wish to wait for such ships as was commonly supposed at the time. It was due to the breakdown of the coaling arrangements.¹ His German colliers declined to accompany his warships or supply them in the open sea, where there was growing risk of Japanese attack as the Baltic Fleet moved east. Fresh contracts had to be made and weeks passed before these were completed.

Without waiting for Nebogatoff or informing him of his own plans, Rojestvensky on March 16 left Nossi Bé. Nebogatoff at that date was still at Suda Bay in Crete, and Rojestvensky probably hoped that the Third Pacific Squadron, as Nebogatoff's force was officially described, would be recalled by the Russian Government. Rojestvensky himself, with the main Baltic Fleet, crossed the Indian Ocean, coaling from time to time at sea en route. It was a remarkable performance with such indifferent crews, some of them mutinous, to cover the distance of over 4,700 miles from Madagascar to Cochin China without putting into any base. He steamed through the Straits of Malacca, passing Singapore three weeks after Dewa had appeared there, and reached Kamranh Bay without any more serious misadventures than occasional breakdowns.

There were constant alarms of the Japanese. Mysterious wireless messages—probably atmospherics—were said to have been taken in by the Russian instruments; balloons were seen; lights were made out; and hostile torpedo craft were several times reported. Yet in actual fact at no time were the Japanese near. At Kamranh and Van Fong Bay (which is near Kamranh) Rojestvensky waited for Nebogatoff with the tacit permission of the French naval authorities. At last, on May 9, Nebogatoff effected his junction, and after filling up with coal on May 14 on the Cochin China coast, the force of fifty vessels set out on the last lap of its voyage, avoiding the routes usually followed by shipping, and on May 20 passed out into the Pacific north of the Philippines.

On May 22, the armed steamers KUBAN and TEREK were detached to demonstrate on the east coast of Japan and draw off the Japanese fleet—a task which they never seriously attempted to carry out. They vanished and took great care

¹ The British authorities in December, 1904, stopped the shipping of coal for the Baltic Fleet: the German Government also quietly raised difficulties with the object of forcing Russia into an alliance with Germany. *Grosse Politik*, XIX, i, p. 263 ff.

to keep away from the Japanese. On May 20, the British steamer *Oldhamia* had been seized, though she carried no contraband, and she was sent off with these two steamers. On May 23, the fleet coaled for the last time, each ship so adjusting her fuel storage as to have her normal quantity of coal at noon on May 26 when Rojestvensky expected to fight a fleet action. The reports that the Russian ships were enormously overloaded with coal were untrue. On that day of coaling Fölkersam died.¹ He had long been in bad health; and his flag-captain in the *OSLIABIA* was instructed to keep his flag flying and to lead his squadron.

On May 25 the fleet was off the Saddle Islands, not far from the mouth of the Yangtze, and there six transports were detached to steam to Shanghai, after showing themselves off the islands, and to take refuge in that port. The two armed steamers *RION* and *DNIEPER* went with them and had instructions to proceed towards Port Arthur, in order to draw off the Japanese. This demonstration had not the slightest effect on the operations. Like the *KUBAN* and *TEREK*, the *RION* and *DNIEPER* were mainly anxious to get away from the neighbourhood of the Japanese.

Rojestvensky had four courses open to him when he left the Cochin China coast. He might have seized a base in the Pescadores or at some point on the Chinese coast and there have waited for the Japanese. But the Russian Government appears to have been warned that any violation of Chinese neutrality would bring into operation the British alliance and lead to the British Navy taking action. And in a temporary base Rojestvensky's final destruction would have been certain, though he might have caused the Japanese considerable trouble before he was destroyed. Moreover he had no troops with him and no fortress material or trenching tools. A second course was to steam up the east coast of Japan and enter the Japan Sea by the Tsugaru Straits; a third course was to enter that sea by the still remoter Soya Straits. Both these straits were reported, however, to have been heavily mined and they were difficult in foggy weather, which is normal in their vicinity in May and June.

It was quite possible for the Japanese fleet with its marked superiority in speed to reach them from its secret bases (the exact location of which the Russians did not know) before Rojestvensky arrived, if he did not appear in the Straits of

¹ It is stated in some Russian accounts that Fölkersam's body was still on board the *OSLIABIA* when she went down.

Korea. He rejected both these routes because of difficulties of navigation and coaling and because he thought it impossible to reach Vladivostock without battle. The last course which remained was to proceed by the Straits of Korea, divided as they are by the island group of Tsushima into two wide channels. Of the two Rojestvensky selected the eastern one. The distance from it to Vladivostock was about 600 miles as compared with 450 miles from the Tsugaru Straits and 510 from the Soya Straits.¹ He determined to time his arrival in the straits for noon of May 27, fearing torpedo attack if he endeavoured to pass in the night. In this he made an important mistake. All the evidence of this war showed that the risk of torpedo attack at night at that date on an intact fleet was not excessive.

Rojestvensky up to the last seems to have hesitated between two alternatives—evading the Japanese and fighting them. He formed up his fleet in close order, compactly, so that it might have a chance of getting through the Straits of Korea unobserved if the weather was thick and the Japanese scouting negligent. But if he meant fighting a decisive battle, this close order was most dangerous because it would allow the Japanese cruisers to reconnoitre him, without his being able to ascertain their preparations and dispositions. It would give them the initiative. His dispositions may be explained by the fact that his cruisers were few and for the most part poorly armed, while he knew the Japanese cruisers to be numerous and powerful. Further, the wireless installations in most of his ships were so bad that they had not been able to transmit messages correctly over quite short distances.² He kept with him several transports which his fleet would need if it ever reached Vladivostock, though they must necessarily be a source of great anxiety in battle. The preferable plan would have been to station them a considerable distance astern till the result of the fighting could be ascertained.

Rojestvensky issued full battle orders, though owing to Nebogatoff's late arrival he had no opportunity of discussing his plans with that officer.³ His battle orders are open to criticism on the ground that they prepared for defeat rather than victory.⁴ Thus instructions were given for the transfer of flag-officers from disabled flagships and for assistance to

¹ Going either by the Tsugaru or the Soya Straits the Russians would have had to steam at least an additional thousand miles up the east coast of Japan.

² *Rasplata*, p. 472.

³ Nebogatoff paid him a short visit when the fleets met. Politovsky, p. 288.

⁴ Custance, *Ship of the Line in Battle*, p. 166.



THE RUSSIAN BATTLESHIP "OSLIABIA"

She was the first ship sunk at Tsushima, where two Japanese shells in succession hit her in the same place and tore a huge hole on her water-line. In her 515 of her crew perished. [p. 250



THE RUSSIAN BATTLESHIP "SUVAROFF"

Carried Rojestvensky's flag at Tsushima and was battered for $4\frac{1}{2}$ hours till at last, after a heroic fight, she went down with almost her entire crew. [p. 250-3

be rendered to disabled ships. The organisation of the fleet was not a good fighting one. The twelve battleships and coast defence ships were to act in one long unmanageable line ahead or line abreast under Rojestvensky. The eight cruisers under Enquist were to form another line ahead or line abreast and either to support the battleships or protect the convoy. The destroyers do not appear to have been ordered to attack; they were virtually to act as tenders to damaged vessels. Instructions were given for fire control, and the importance of careful shooting was emphasised. Rojestvensky himself appears to have had no clear idea of what he meant to do. His leadership was of a passive character, and he thought rather of parrying the enemy's moves than himself of thrusting. It is possible that his best course would have been to try to force a close action as quickly as possible when with his superior number of heavy guns he would at least have had a chance of inflicting severe loss on the Japanese. The manœuvring and shooting of his fleet may have been too poor for such a plan, but it could not have given worse results than that actually followed. The speed for battle was fixed at 9 knots, so as to leave a good margin for the older ships which were foul and unable from their defective boilers to steam fast. Thus the *SISSOI VELIKI* could at the best only steam $13\frac{1}{2}$ and the *NICHOLAS I* 13 knots. As the fleet approached the Straits of Korea strict orders were issued not to use wireless, so that the Japanese should not have warning of its coming.

From the Saddle Islands to the mouth of the Straits of Korea is some 400 miles.¹ On May 25, Rojestvensky steamed slowly towards the straits with a strong wind blowing and heavy sea running. He had plenty of time on his hands and his speed varied between 5 and 8 knots. The very slowness of his movements puzzled the Japanese, who knew that the Russian transports had arrived at Shanghai in the afternoon of the 25th and expected the Baltic Fleet to appear in the straits on the 26th at latest. In precisely the same fashion the leisureliness of Brueys's movements disconcerted Nelson in 1798, and Cervera's slow progress towards the West Indies in 1898 surprised Sampson. As night of the 25th² fell over the grey stormy sea the Russian ships began to take in wireless signals in a strange language and knew that

¹ Rojestvensky turned towards the straits when ninety miles from Shanghai.

² Most of the Russian accounts do not mention hearing any wireless signals before the 26th.

invisible antagonists were not far away. The 26th broke cold and rainy but then cleared, and the sun came out, though a mist lay on the water.

Rojestvensky had several hours to spare if he was to pass the straits at noon on the 27th and some time was therefore passed in battle manœuvres. During the morning of that day Japanese wireless installations could be heard transmitting and by nightfall seven distinct installations were operating, and from the character of the messages taken in, it was clear that Japanese scouts were near. In all the Russian ships the night was spent with half the crews ready at the guns to meet torpedo attack and the remainder dressed, ready if the alarm was given. The vessels were fully prepared for battle.

COALING BASES USED BY THE BALTIC FLEET

(1) VICE-ADMIRAL ROJESTVENSKY'S SQUADRON.

			Distance from Libau miles (approx.).
Vigo	(Spanish)	Oct. 26–Nov. 1, 1904	1,870
Tangier	(Morocco)	Nov. 3–5, „	2,420
Dakar	(French)	„ 12–16 „	4,020
Gaboon	(French)	„ 26–Dec. 1 „	5,970
Great Fish Bay	(Portuguese)	Dec. 6–7 „	7,070
Angra Pequena	(German)	Dec. 11–17 „	7,720
St. Mary, Madagascar	(French)	Dec. 29–Jan. 6, 1905	10,770
Nossi Bé	(French)	Jan. 9–Mar. 16, 1905	11,270

(2) REAR-ADMIRAL FÖLKERSAM'S SQUADRON.

Brighton	(outside British waters)	Oct. 23	
Arosa Bay	(Spanish)	„ 26	1,856
Tangier	(Morocco)	Nov. 3	2,420
Suda Bay	(Turkish)	„ 10–21	3,920
Suez	(Egyptian)	„ 26–27	4,560
Djibuti	(French)	Dec. 3–14	6,060
Nossi Bé	(French)	Dec. 28–Mar. 16, 1905	8,060

(3) REINFORCING SQUADRON.

Tangier	(Morocco)	Dec. 4	
Algiers	(French)	„ 6	
Suda Bay	(Turkish)	„ 12–Jan. 8, 1905	
Suez	(Egyptian)	Jan. 13	
Djibuti	(French)	„ 18–Feb. 2	
Dar-es-Salaam	(German)	Feb. 10–11	
Nossi Bé	(French)	„ 14–Mar. 16	

1905]

BASES USED

*(continued)*Distance
from Libau
miles
(approx.).

(1-3) IN COMBINATION.

Off Singapore	April 8, 1905	15,800
Kamranh Bay (French)	„ 14-22	16,500
Van Fong Bay (French)	„ 26-May 9	16,550

(4) REAR-ADMIRAL NEBOGATOFF'S SQUADRON.

Off Cherbourg (French)	Feb. 27, 1905	
Zafarin Islands (Spanish)	Mar. 6	
Suda Bay (Turkish)	„ 13-21	
Suez (Egyptian)	„ 25	
Djibuti (French)	April 2-7	
Mir Bat Bay ¹ (British)	„ 12-13	
Van Fong Bay (French)	May 9	

(5) WHOLE FLEET COMBINED.

Kua Bé (French)	May 10-14	16,570
Passed Liukiu (or		
Loochoo Islands) (Japanese)	„ 22	17,870
Off Saddle Islands (Chinese)	„ 25	18,270
Tsushima (Japanese)	„ 27	18,670

¹ On the Arabian coast.

CHAPTER XIV

Battle of Tsushima, May 27-28, 1905—The Russians Discovered—Togo's Anxiety—He Puts Out to Battle—Comparison of the Fleets—Japanese Cruisers Close Round the Russians—Fatal Mistake of Rojestvensky—Togo's Bold Turn—Fire Opened—The "Asama" out of Action—"Osliabia" Sinks—Fearful Effect of Japanese Shells—Futile Torpedo Attacks—End of the "Suvaroff"—Japanese Losses—Nebogatoff takes the Lead—A Night of Torpedo Attacks—Many Russian Ships Sunk—Nebogatoff Surrenders—Annihilation of the Baltic Fleet—Russian Losses—Courts-Martial after the War.

THE night was dark and misty with a range of visibility that did not exceed 4,000 yards,¹ but the Russian ships carried navigation lights (though not topmast lights) and it was these which betrayed them—supposing always that they wanted to reach the straits undetected. At 2.45 a.m. (Japanese time) on May 27, the auxiliary cruiser *Shinano Maru* (Captain Narukawa) cruising forty miles west of the Goto Islands, sighted lights moving eastward, and closing somewhat, as the night was misty, observed three lights—white, red and white—suspended one under the other on the mizzen mast of a vessel. The moon had just risen, but Narukawa could not clearly make out what the ship was, and therefore he increased speed the better to scrutinise her, and passed her on the port side. At 4.30 he ascertained that she resembled an auxiliary in the Baltic Fleet, and drawing still nearer to her saw that she carried no guns. He drew the correct conclusion that she was a Russian hospital ship.

The stranger apparently took the *Shinano Maru* for a Russian ship and made a flashlight signal which indicated to Narukawa that there were other Russian vessels in company. Where they were could not yet be seen by him, and he steamed direct towards her to examine her. At this moment, 4.45

¹ *Rasplata*, p. 465.



Togo's Fleet off Tsushima

[PLATE 20. p. 240

An actual war sketch of Mr. H. C. Seppings Wright, showing the rig adopted by Togo during the war. Fighting tops were removed as Togo considered that they gave the enemy's gunners a good mark to lay upon. Elaborate fire-control apparatus (which necessitates strong platforms on masts) had not then been introduced.

a.m., there appeared through the mist not a mile away the shapes of at least ten warships, and the smoke of many others could be made out. The *Shinano Maru* had located the Russian Fleet, and she instantly gave the alarm by wireless: "Enemy is in square 203." It should be said that for quick and accurate signalling the Japanese had divided up the map into numbered squares, a plan which was followed by the Germans in 1914.¹ As a scouting feat Narukawa's work was ideal. He further reported that the Russians were steering for the eastern channel of the Korea Straits, but then for some time his observations were interrupted. The Russians vanished in the mist and not till 6.5 was contact with them recovered.

What is astonishing is that the Russians took no steps to deal with this audacious auxiliary cruiser which was armed with nothing more formidable than two 6-inch guns, fore and aft, and that when she first appeared, her appearance was not even reported to Rojestvensky. From about 5 a.m. onwards the Russians could tell from the character of the wireless messages which were passing from the Japanese that they were discovered and that the Japanese scouts were closing in upon them. But the URAL, which carried a powerful wireless installation, was not allowed to jam the Japanese signals. The attitude of the Russians was one of complete inertia. The *Shinano Maru* seems to have sighted the hospital ship OREL, which should have been well to the rear of the Russian formation, but actually appears to have been ahead of station. (Details of Fleets in Table XVIII.)

Togo had been waiting with growing anxiety at the absence of all definite news about Rojestvensky's fleet as day followed day. He was beginning to fear that the Russians might after all be steaming round the east coast of Japan, in which case it would be necessary for him to proceed north and place his forces between them and Vladivostock. As his fleet was good for 14 knots and the Baltic squadron for not more than 10, he could be certain of reaching Vladivostock before them even if he waited for the news of their appearance in the Tsugaru or Soya Straits. It would, however, have been impossible to destroy the Russian force had the battle been fought close to a Russian base. But the sound judgment which he had displayed was now at last to be brilliantly vindicated. The need of extreme vigilance had been impressed on the Japanese scouts and cruisers in the Korean

¹ See the map No. 5 in O. Groos, *Krieg in der Nordsee*, i.

Straits and excellent dispositions had been made to carry out the watch there.

In the night of May 26–27 the outermost line of patrol was formed by six vessels, thus disposed from north to south—*Akitsuushima*, four auxiliary cruisers of which the *Shinano Maru* was the third, and *Idzumi*. Behind this line was Dewa with his four fast cruisers (*Kasagi*, *Chitose*, *Niitaka*, *Otowa*) of the Japanese 3rd Division. The 5th Division under Kataoka (*Itsukushima*, *Chinyen*, *Matsushima*, and *Hashidate*) with the *Suma* and *Chiyoda* of the 6th Division was at Tsushima. Togo with the main battle force, organised in two divisions (the first of the four battleships with the armoured cruisers *Kasuga* and *Nisshin*, and the second of the six armoured cruisers of the *Idzumo* class under Kamimura) was in Douglas Inlet at the entrance to Masampo harbour. He had also with him a large number of torpedo craft and the 4th Division under Uriu (*Naniwa*, *Takachiho*, *Akashi*, *Tsushima*). At 5.5 a.m. of May 27 Togo received the wireless message from the *Shinano Maru* and by it and subsequent messages which showed that all the Russian Fleet was located, all his doubts were removed. He had correctly divined his antagonist's plan with that genius which the great commander shows. The tidings that the Russians were in square 203 seemed to the Japanese an omen of victory, for they had not forgotten that the storming of 203-Metre Hill had brought the fall of Port Arthur. The enthusiasm in the fleet was indescribable, and Togo telegraphed to Tokio this message:

“I have just received the news that the enemy's fleet has been sighted. Our fleet will forthwith proceed to sea to attack the enemy and destroy him.”

At 6.34 the *Mikasa* led the procession of some forty vessels to sea for the final battle, while every few minutes reports came in from the Japanese scouts and cruisers as to the formation and course of the Baltic Fleet. When Togo emerged on the straits he found there mist which limited visibility to a range of 10,000 to 12,000 yards. The wind was from the west-south-west, with force Four to Five (moderate to fresh), and so heavy a sea ran that torpedo boats could not keep station. The torpedo boats were therefore ordered to shelter under the coast of Tsushima till the moment came for them to strike. Togo himself with five destroyer divisions (twenty-one destroyers) and the two armoured divisions steamed round the north of Tsushima towards Okinoshima, a little island which rises to a height of 800 feet, near the centre of the eastern

channel. His plan was of the simplest—to fall on the head of the advancing Russian armoured ships, while his cruisers, operating separately, fell on the Russian rear. The reports from his scouts gave him a good general idea where he would sight the Russians, but their exact formation could not be definitely ascertained till the moment before battle was joined. Cruiser work perhaps was never better done. After the daylight fighting, the Japanese torpedo craft were to assail the Russian Fleet and drive home any advantage gained.

The two fleets which were about to meet were not unevenly matched on paper. In each the principal force consisted of twelve armoured ships, which were placed in line. The Russians had in addition two armoured cruisers of ancient type, and the Japanese the old battleship *Chinyen* which carried antiquated 12-inch guns with a short range and low rate of fire. The four Russian battleships of the 1st Division, the vessels of the SUVAROFF class, were more modern than the four Japanese battleships, and carried an almost exactly similar armament, though the Russian 6-inch guns were forty-five calibre long and the Japanese only forty. As against that, the Japanese 6-inch shell weighed 100 pounds, and the Russian only ninety. The Japanese 12-inch shell was also much heavier than the Russian, weighing 850 pounds against 732. In armour protection there was little to choose, but the four best Russian battleships were about 800 tons deeper in displacement than their designed draught, owing to modifications during construction. This was not a serious matter and had no influence on the result of the battle, as they stood punishment surprisingly well.

The fifth ship in the Russian line, the *OSLIABIA*, was a sister of the *PERESVIET* and *POBIEDA* in the Port Arthur fleet, and was a good modern unit. The other seven Russian ships in line, however, were much older than the Japanese vessels which opposed them and were generally armed with short-range guns of relatively slow-firing type. The painting of the Russian ships was bad; the hulls and upper works were black while the funnels were a bright salmon yellow and stood out plainly against the mist, whereas the Japanese ships with their uniform tint of grey were exceedingly hard to distinguish. The older Russian ships used smoke-producing powder in their guns which was a great handicap on their shooting. The Russian shells contained a much smaller charge of high explosive (nitro-cellulose) and this of lower power than the Japanese shells, which in the case of the

8-inch and 12-inch guns contained shimose, a variety of lyddite or picric acid. A large proportion of the Russian shells failed to burst, whereas the Japanese shells were generally effective; the fuses had been improved since the battles of August, 1904, but there are said to have been some premature bursts in Japanese guns.

Each side took armoured cruisers with thin water-line belts into the line of battle. The Russians had the old NAKHIMOFF; the Japanese their eight modern armoured cruisers, two of which manœuvred with the four battleships. The following figures give a classified comparison of the two fleets:

ARMOURED SHIPS CARRYING HEAVY GUNS IN LINE OF BATTLE

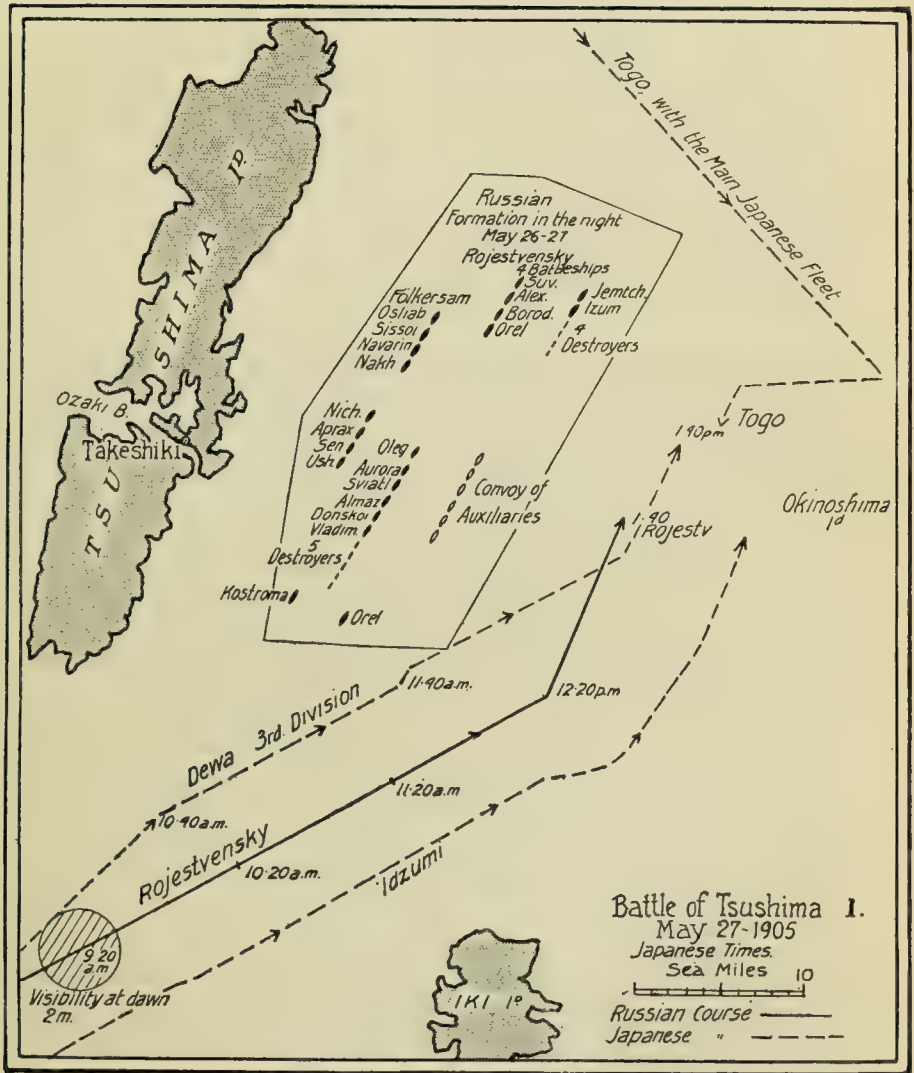
	BATTLESHIPS.					ARMOURED CRUISERS.	TOTAL.
	1st class.	2nd class.	3rd class.				
Japanese	4	0	0			8	12
Russian	5	3	3			1	12
						Total	
	Broad-sides.					weight	Total No.
	12-in.	10-in.	9-in.	8-in.	6-in.	of metal.	of guns.
Japanese	16	1	0	30	80	28,400 lb.	127
Russian	26	15	2	6	43	32,090 „	92

The Japanese had an advantage in number of guns; the Russians in heavy weapons (forty-one to the Japanese seventeen) and weight of metal discharged in one round. But in actual fact when the range had been obtained the Japanese had an advantage in weight of metal fired in a given time of at least three to one, owing to the better training and long experience of their gunners. The heavy sea running gave the better seamen an additional superiority.

In speed the Japanese Fleet as a whole could steam at least 15 or 16 knots without difficulty, as its ships were clean and in good order. The armoured cruiser squadron was good for 18 knots. The Russian speed as a fleet did not exceed 10 or 11 knots.

In cruiser and torpedo craft the two fleets compared as follows:

	Cruisers.			
	Fast (20 kts. and over).	Slow.	Destroyers.	Torpedo Boats.
Japan	7	9	21	44
Russia	5	3	9	0



PLAN 17

The Russian inferiority in cruisers and torpedo craft was thus marked. The Japanese cruisers or vessels in the cruiser formations mounted on the broadside seven 12-inch or 12.6-inch guns of old type, four 8-inch, thirty-one 6-inch, and forty-eight 4.7-inch, against the Russian twenty-two 6-inch and twenty-one 4.7-inch guns, so that they had an enormous artillery preponderance. The Japanese destroyers carried a far more powerful gun armament than the Russian destroyers (two 12-pounders and four 6-pounders apiece against one 12-pounder and five 3-pounders). The smaller guns have not been mentioned; in the encounter between armoured ships they played a relatively insignificant part. In total displacement the Japanese had a superiority of twenty-nine per cent. with 202,000 tons against the Russian Fleet's 156,000.

The *Shinano Maru's* alarm was followed by a concentration of Japanese cruisers to watch the Baltic Fleet. The mist still veiled from the ships every sign of land so that the Russians were a little uncertain as to their position. Rojestvensky, as wireless signals were coming in all round, now recalled the ALMAZ, SVIETLANA and URAL which were in advance of his line and sent them to protect his transports in the rear. About 6.30 a.m. he learnt that four Japanese cruisers were passing astern of his fleet; these were the "greyhounds" of Dewa's division which missed the Russians in the mist and went off much too far to the south, losing all touch. At 7 a.m. the Russians saw the Japanese cruiser *Idzumi* to starboard, steaming side by side and 10,000 yards off. She was allowed to watch the Baltic Fleet undisturbed. About 9 a.m. Kataoka with the *Itsukushima*, *Chinyen*, *Matsushima* and *Hashidate* appeared to port and joined in the surveillance without being molested. Dim forms of other Japanese ships could be seen to the north, and Rojestvensky evidently thought the Japanese main force was approaching from that quarter. At 10 a.m. he changed from his cruising to his battle formation. So far his ships had been steaming in two columns, Nebogatoff with eight ships to port, and himself 1,000 yards to starboard with eight battleships in the second column. Between the two were the transports. Now he formed his twelve armoured ships in line ahead, placing the transports, destroyers and cruisers to starboard, which he expected would be the sheltered side.

About this time Dewa's cruisers appeared, having returned from the south, and closed on Rojestvensky's port beam to

9,000 yards. The OREL at 11.40 trained her guns on them and by accident fired a shot from a 12-inch weapon, when Nebogatoff's ships also opened. Thirty rounds were discharged before Rojestvensky stopped the firing by signal. The Russian crews were sent to dinner and the Japanese cruisers drew off. The mist had slightly thickened and at this moment no Japanese vessels were in sight. Rojestvensky determined to use the opportunity to change his formation, in the hope of springing a surprise on Togo, whom he believed to be fast approaching from the north. The Russian admiral therefore attempted to deploy his line ahead into a line abreast, but when he was in the midst of this evolution, the mist lifted, the Japanese cruisers once more came into sight, and he knew that all his labour was vain. He annulled the order for deployment so as to get his ships back into line ahead as quickly as possible, but as the result of his action about 1.45 the Russian Fleet was in two separate lines ahead, Rojestvensky with his four battleships to starboard, and to port eight armoured ships headed by the OSLIABIA with Fölkersam's flag, slightly overlapping Rojestvensky's division. The Russians were steaming 9 knots, except Rojestvensky's division which was going 11 to take station ahead of the OSLIABIA and the rest of the line.

The Japanese main force saw the Russian battleships some minutes before it was seen by the Russians, probably owing to the difference in painting. It was 1.39 p.m. and the sea was even heavier than it had been in the early morning so that the ships rolled considerably. Togo was steaming 14 knots on a course opposite to that of the Russians who were a little on his starboard bow. He turned at 1.40 steering across their apparent course, and now his ships were sighted by the Russians. The Japanese ships seemed to be keeping perfect order, so that as a Russian officer afterwards said they might have been chained together, with such exactitude and precision did they move. Actually, however, the last three or four ships were astern of station. Togo led his twelve ships over to the port side of the approaching Russians and then turned once more as if he meant to pass the Russian Fleet on an opposite course. At this moment the Japanese battle flags were hoisted and Togo made the signal: "The future of the Empire depends on the issue of the battle; let every man do his utmost."

He was to port of the Russians and it looked as if the two fleets were to pass on opposite courses at a distance of 6,000

yards, when at 2.5 he turned suddenly and sharply sixteen points to port, and thus reversed the direction of his movement so as to steam on a course parallel to his opponent. As his line of twelve ships would have to pass in succession over the same point of water, and as, during the process of turning, they would blanket one another's fire and give the Russian gunners an admirable target, this was an exceedingly perilous manœuvre. It was executed because, as has already been said, the precise Russian formation could only be determined when contact between the two battle fleets was established. To pass on opposite courses means indecisive action; to fight on parallel courses means decisive battle, if the distance is shortened sufficiently to give the guns a good chance. The best shooting is made by good gunners when the enemy is kept at a constant range, whereas when the range is rapidly changing, hitting is a matter of chance. At this supreme moment Togo acted in the spirit of Nelson's saying, "nothing great can be achieved without risk." He was determined that the battle should be decisive, and he put behind him the cautious manœuvres which had permitted the Russians to escape on August 10.

The Russian line was in considerable confusion. Rojestvensky's division, steaming 2 knots faster than the rest of his line, had not been able once more to take station at its head, when as the *Mikasa* led on the turn, a flash of flame burst from the SUVAROFF's fore-turret and the Russians fired the first shell at the Japanese armoured ships at a range of 7,000 yards at 2.8 p.m. The three leading Russian ships and the OSLIABIA joined in with their heavier guns and columns of spray rose about the *Mikasa*. She held her fire till 2.10 when she replied at 6,600 yards, shooting very slowly and deliberately till she got the range, and behind her as one after another the other Japanese ships steadied on the new course they opened as well. The Japanese concentrated their fire on the SUVAROFF and OSLIABIA in these initial moments of the battle; the Russians fired at the *Mikasa*. The confusion in the Russian line increased. The OSLIABIA had to stop to avoid collision with the OREL, and the ships to the rear of the Russian line had to reduce speed or stop as the consequence of Rojestvensky's unhappy mistake in trying to alter his formation at the last moment and in the presence of a formidable enemy. The Japanese were now drawing into one long line somewhat ahead of the Russians and moving generally parallel to them, and the rearward Russian ships were

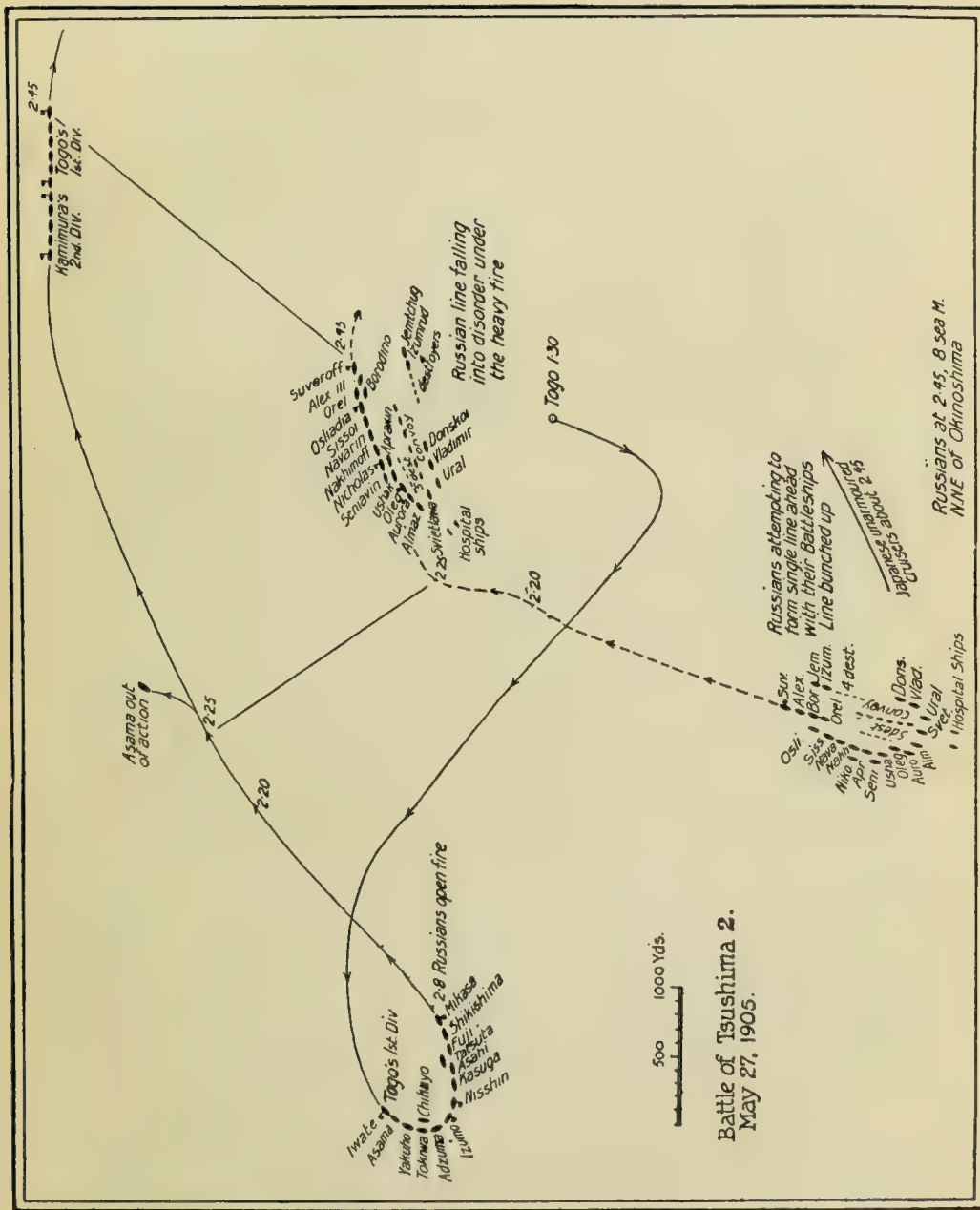
unable to engage. Not until ten minutes after the first shot was Nebogatoff's flagship, which came eighth in the Russian line, able to open fire. The Japanese quickened to 15 knots to effect a concentration on the five leading Russian ships.

The OSLIABIA, attacked by the *Shikishima*, *Fuji*, *Kasuga*, *Nisshin*, *Idzumo*, *Tokiwa* and *Yakumo*, had her fore turret put out of action (after it had only fired three shots) by a shell which struck it on one of the ports just below the 10-inch gun, jamming the gun at its extreme elevation and lifting the top of the turret. A great fire broke out on board her, and two shells struck her water-line near the bow, blowing a huge hole in her. She began to list to port and her bows sank deeper in the water. The *Iwate* and *Asama* appear to have fired at the SISOI VELIKI, which followed the OSLIABIA in the Russian line, and the smoke of a fire could be seen rising from the SISOI's hull. On the SUVAROFF, the *Mikasa*, *Asahi* and *Adzuma* concentrated their fire, and after eight or ten minutes began to hit continuously; as the range sank to 5,500 yards they increased the rapidity of their shooting. "Never before had I witnessed such a fire," said an officer on Rojestvensky's staff in the SUVAROFF; "I had never even imagined anything like it.¹ Shells seemed to be pouring upon us incessantly, one after another. It seemed as if these were mines, not shells which were striking the ship's side and falling on deck. They burst as soon as they touched anything." Violent fires broke out on board the SUVAROFF. The Japanese must from time to time have shifted targets and attacked the ALEXANDER III, second ship in the Russian line, as she too was soon ablaze and shrouded in dense clouds of brown smoke.

Togo had as yet no cause for satisfaction. Already about 2.30 the first ship in either fleet was quitting the line. This was the *Asama*² which came last but one in Kamimura's squadron, and with the *Iwate* had received the concentrated fire of the Russian rear. At 2.28 a 12-inch shell hit her and disabled her steering gear, causing such serious leaks that she had to sheer out and make temporary repairs. Two other heavy hits upon her followed. The *Mikasa* had been heavily hit by two 12-inch and two 6-inch shells, which caused 54

¹ *Battle of Tsushima*, pp. 62-3.

² She had been on detached duty and only rejoined just before the battle opened. The Japanese Official History places her last but one; the British Official History, last, and it received Japanese revision (iii, p. 752). But I have been courteously informed by Commander Izawa, I. J. N., that her real position was fifth—last but one.



casualties, though to the observers in the Russian ships she showed no external signs of damage. Togo himself throughout the battle remained in the open, outside the conning tower, on the upper bridge, as also did Beatty at Jutland. Togo was now working slightly to starboard so as to cross the course of the Russians and rake their ships, the range varying from 5,000 to 6,000 yards. As the fire of the Japanese became more and more effective, the difficulties of the Russians increased. About 2.30 Rojestvsky had a chance which he failed to use. The Japanese were then distinctly ahead of his line, and he might have turned to port and have passed astern of them, when, if his orders had been quickly and efficiently carried out, he might have greatly improved his position. None of his ships had yet fallen out and he had twelve armoured vessels in line against eleven Japanese. But with singular passivity he lost his one chance. He turned to starboard, instead of to port, and by so doing threw his guns off the target for some minutes.

The *Mikasa*, up to this point, had sustained ten hits from heavy projectiles, but from 2.30 onwards the Japanese poured a storm of shells into the *OSLIABIA* and *SUVAROFF*, both of which ships were ablaze with explosions, and wrapped in smoke and flame. Masts and funnels vanished in that terrific fire; the *OSLIABIA*'s bow sank more and more; at 2.45 Togo knew that the battle was won. His eleven ships still in line were drawing across the Russian course and the artillery fight had reached its full height. The Russian ships were falling into disorder and losing formation; to the Russians the Japanese Fleet looked "just the same—no fires—no heeling over—no fallen bridges—as if it had been at drill instead of fighting." Rojestvsky had been wounded and most of the officers and men in the *SUVAROFF*'s conning tower had been killed or wounded. The casualties in the Russian flagship were exceedingly heavy, when, at 2.50, the steering gear was wrecked by a Japanese shell and the *SUVAROFF*, no longer under control and with only one mast and one funnel standing, turned out of the line and thenceforward circled round and round for an hour or so.

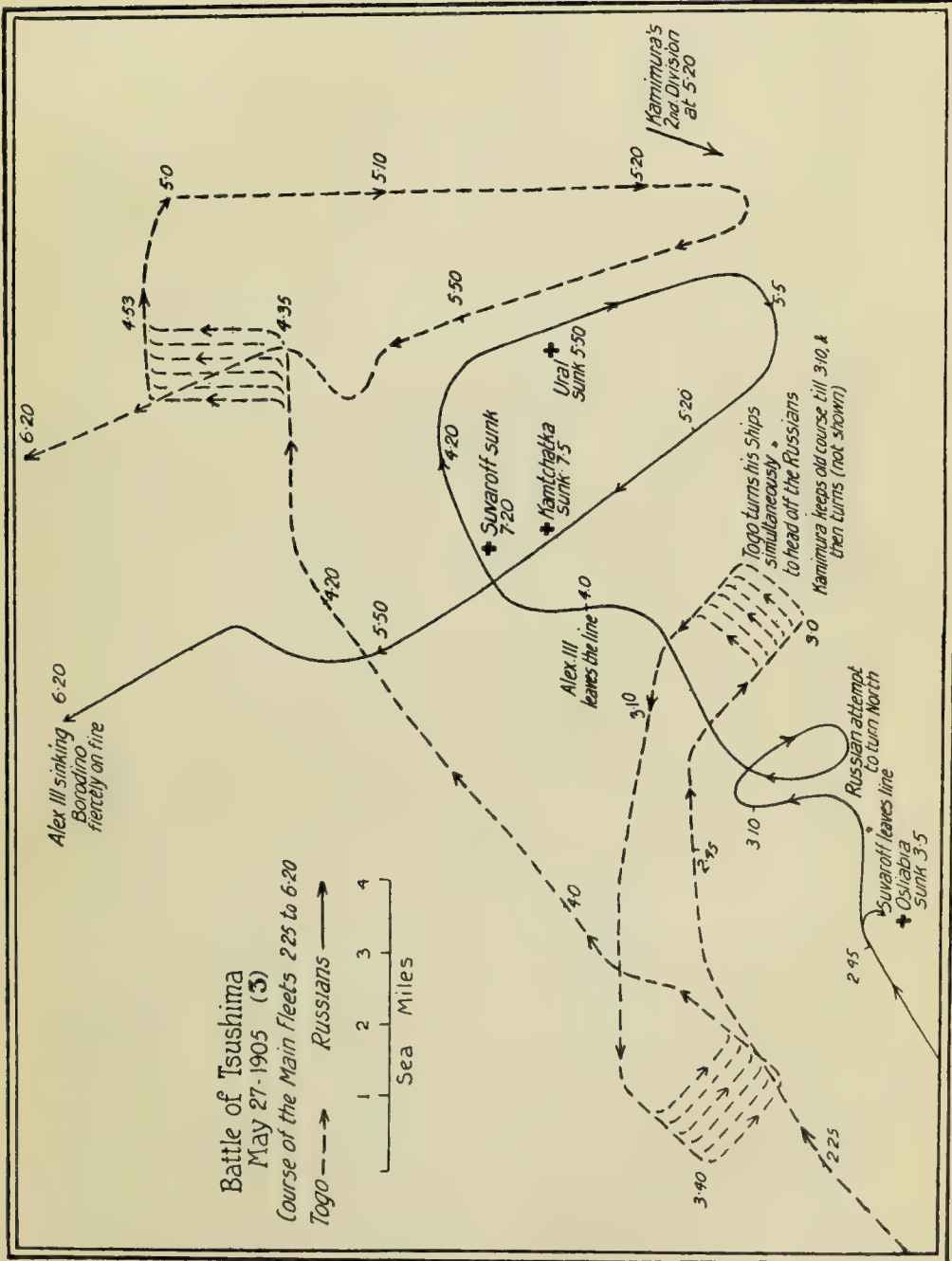
About the same time the *OSLIABIA* in similar plight also left the line. A whole series of shells struck her water-line armour. Two hits in succession on one plate loosened it and flung its fragments into the sea, when a third projectile struck in the same place and penetrated the ship. About 3 p.m. her forecastle was almost completely submerged; the water

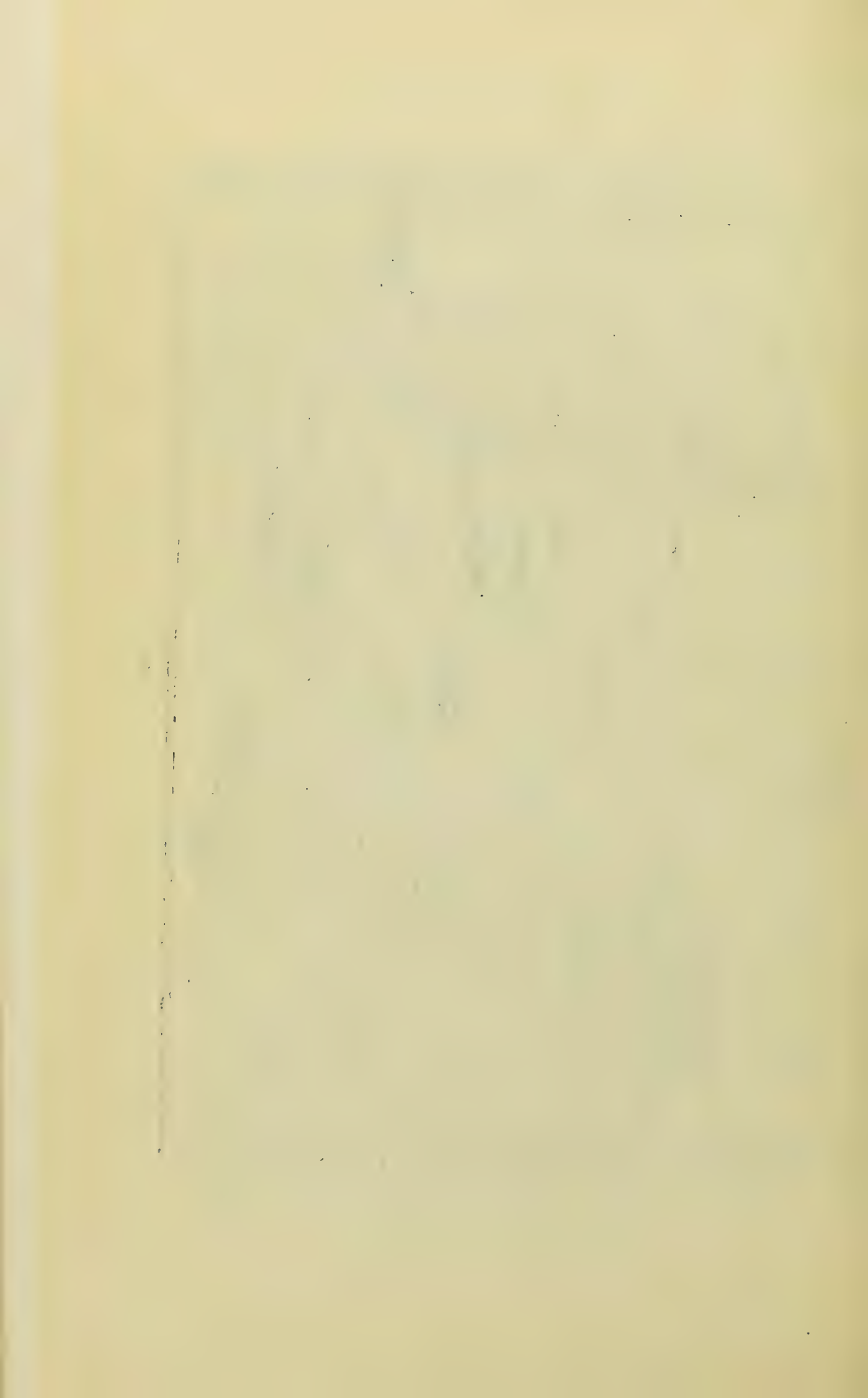
rushed in with a roar, and she turned slowly over to port, lying for a perceptible time on her side with the shattered remnant of her funnels just clear of the sea before she vanished for ever. The Russian destroyers picked up 385 of her crew; the other 515 perished in her. The SUVAROFF's upper works were completely wrecked, and Russian observers in other ships reported that her unarmoured hull forward was torn away so that she looked like a monitor. The after-turret was struck and blown high in the air, probably by the explosion of a large quantity of ammunition; and the ship herself was burning furiously, though from one or two guns her undaunted crew gallantly maintained a spasmodic fire.

When the SUVAROFF fell out of the line, the ALEXANDER III took the lead and for some minutes continued on the course Rojestvensky was steering, but then turned sharply to port, northwards, followed by the Russian line in an attempt to pass to the rear of the Japanese. Observing this manœuvre Togo turned the six armoured ships of his division simultaneously sixteen points, reversing the order of his line and the direction of his movements, and, placing himself across the course of the Russians, forced them to turn back once more to the south-east. Kamimura with the five armoured cruisers (the *Asama* had completed repairs, but had not yet been able to get back into line) did not follow the battleships but kept on the old course for several minutes before turning. At 3.6 the despatch vessel, *Chihaya*, which accompanied him on the lee side of his line, was sufficiently close to the Russians to discharge two torpedoes at the BORODINO which seem both to have missed at 2,750 yards. At this close range the effect of the Japanese artillery fire on the leading Russian ships was terrific. The ALEXANDER III "seemed completely enveloped in flames and brown smoke, while round her the sea literally boiled. . . . Then we saw a whole series of shells strike her forebridge and port 6-inch turret, and turning sharply to starboard she steamed away."¹ Togo had brought his division across her bows while Kamimura was firing into her. About this time the 5th Destroyer Division attacked the SUVAROFF and claimed to have hit her with two torpedoes, though Russians on board her state that she escaped.

At 3.7 several of the Japanese ships discharged torpedoes at the Russians without any definite result, and five or ten minutes later in the dense clouds of smoke from shells and burning ships and from the brown powder in the older

¹ *Battle of Tsushima*, p. 117.





Russian guns the Japanese lost sight of their enemies. At 3.34, as Kamimura hunted in the smoke and mist for the Russians, he came upon the SUVAROFF and shortening the range to 2,000 yards, attacked her furiously, sweeping away what remained of her upper works and putting every gun but one out of action. The *Yakumo* fired a torpedo at her, but must have missed. The *Chihaya* then closed to 1,800 yards and fired two torpedoes at her, which appear to have exploded without sinking her. She was left a complete wreck without masts or funnels, with a list to port, with flames issuing from the wounds in her side, "burning like a volcano."¹

The Russian fire had died down during this stage of the battle and the Russian Fleet had broken up into little groups, which were attacked by the Japanese whenever they were sighted. About 4 the ALEXANDER III was hit repeatedly and flames could be seen rising high between her funnels; she left the Russian line in which the BORODINO then took the lead. Togo's division, at a range of about 1,000 yards where every projectile would hit, steamed past a Russian battleship, which may have been either the SUVAROFF or ALEXANDER III, and poured into her a fearful fire, to which her crew heroically replied with a few shots.

The Japanese commander-in-chief at 3.40 had turned his ships simultaneously, inverting the order of his line and the direction of movement for the second time, and had thus brought the *Mikasa* back to the head. He once more sighted the SUVAROFF in the smoke and again pounded her; smitten with shell and hit by torpedoes she still floated, and the *Mikasa* fired yet one more torpedo at her without effect. About 4.35 Togo turned north in line abreast, probably to ascertain the condition of his six ships and to get them out of the way of a destroyer attack which he ordered his flotillas to execute. The smoke was so dense and the visibility so bad that it was difficult to distinguish ship from ship. The torpedo attacks were all delivered against the SUVAROFF and do not seem to have seriously affected her wreck.

When Togo went north, Kamimura operated independently and hunted for the Russians in the obscurity. Togo's division met and sank the URAL, torpedoing her after they had fired into her. They next encountered a number of Russian destroyers which seemed to intend an attack, whereupon Togo stood away from them and did not again sight any considerable force of Russian ships till 6 p.m. In this

¹ St. Pierre, p. 16.

interval Rojestvensky, who had been three times wounded and whose condition was serious, was removed from the SUVAROFF with his staff to the destroyer BUINY. She came alongside and took him off with great difficulty. The intention was to transfer his flag to one of the battleships which still remained effective, but he was suffering from concussion and from a wound in the skull and could only murmur: "Nebogatoff—Vladivostock—course north, 23 degrees east." The destroyer BEZUPRESHCHNY was despatched to inform Nebogatoff that the command had devolved on him. She did not carry out her commission as she should have done and he only learnt that the fleet was to make for Vladivostock. The destroyer BIEDOVY was sent to save the remnant of the SUVAROFF's crew, as that ship was no longer able to fight, but the destroyer could not locate her in the smoke and mist.

Togo came upon the ALEXANDER III about 6 p.m., when she was found leading the Russian line. She had apparently put out her fires and made hasty repairs, but she was now very low in the water. The Japanese guns speedily drove her from the line once more, ablaze, with an immense hole on the water-line forward. Again she made hasty repairs and returned to the line, falling into it near its rear, but hardly had she done this when she hoisted the distress signal and sheered out with masts and funnels shot away—a complete wreck.¹ As she left the line, she turned slowly over to port showing the red paint on her bottom and then capsized, floating for some minutes bottom upwards with a considerable number of men crowding on her hull, before she finally disappeared, taking down with her all her crew of 830 except four men. The BORODINO and OREL were at this time at the head of the Russian line, to the west of the Japanese, with the setting sun behind them, and at a range of 6,000 yards or more they were constantly hit, but were fighting most gallantly. The mainmast in the BORODINO fell; the flames from a great fire in her rose high and reddened the sea with their glare.

About 7 p.m. the Japanese battleships turned away north and the *Fuji* fired a last 12-inch shell at the Russian battleship which hit and detonated the BORODINO's magazines. They exploded with two heavy reports when she capsized and, after floating bottom upwards, went down. Of her large crew only a single officer survived. He crawled out of

¹ St. Pierre, p. 19.

a gun port, climbed upon the bottom, and was picked up by a Japanese fishing vessel hours later. The SUVAROFF sank about the same time and took down with her all who remained alive on board after five hours of terrific bombardment by the Japanese fleet, endured with a devotion which is beyond all human praise. Her destruction was effected by the Japanese 11th Torpedo Boat Division which made "at least three hits" with 14-inch torpedoes. In a dense cloud of yellowish black smoke she capsized and floated bottom upwards for a short time; at 7.20 p.m. her bow stood right out of the water and then vanished for ever. Such was the end of one of the most determined fights ever made by armoured ship.

Kamimura's division was rejoined by the *Asama* at 5.5, but that armoured cruiser was 5 feet deeper in the water than her proper draught, and could maintain only a moderate speed. About this time the division went to the aid of the Japanese protected cruisers, which were heavily engaged with a mass of Russian ships and with Nebogatoff's armoured vessels, and drove the Russians off westwards. It caught and shelled the auxiliary ship KAMCHATKA; at 8,000 yards it fired into the NAKHIMOFF; and it also gave the SUVAROFF several salvos. At 7.30 it proceeded north to join the battleship force under Togo and leave the field clear for the torpedo craft.

During the daylight battle the light Japanese ships had been active in carrying out Togo's plan, by which they were to fall on the Russian cruisers and auxiliaries, passing round to the Russian rear. Dewa's fast cruisers were hampered by the high sea, but with Uriu's and Kataoka's divisions they engaged the OLEG, AURORA, DMITRI DONSKOI and NAKHIMOFF. The *Kasagi* received a bad hit in a bunker 12 feet below the water-line and was compelled to haul out, leaking severely and in some danger, in order to effect repairs which were not completed till the following day; she was accompanied by the *Chitose*, to which cruiser Dewa transferred his flag as soon as the *Kasagi* had reached the Japanese coast. These ships between them sank the auxiliaries RUSS and KAMCHATKA, and set the OLEG and JEMTCHUG badly on fire. The younger Togo's division of cruisers cut off the Russian hospital ships and left the Japanese auxiliary cruisers to secure them.

Thus the daylight battle ended with the loss to the Russians of four of their best battleships and the auxiliaries KAMCHATKA, RUSS and URAL, with very considerable damage to

the battleships OREL, NAVARIN, and SISOI VELIKI, and with slight damage to the NICHOLAS I and to the armoured cruisers NAKHIMOFF, VLADIMIR MONOMAKH and DMITRI DONSKOI. The NAVARIN had received four hits on or below the water-line in addition to many others on her upper works and she was leaking heavily and exceedingly low in the water. The SISOI VELIKI had a large hole forward through which the water poured in, and she, too, was in grave difficulties. The Russian ships which had suffered least were the three small coast-defence vessels in Nebogatoff's division, as the Japanese evidently concentrated their attack on the most powerful Russian units.

So far as the Japanese armoured ships were concerned, the fighting was over; for though one or two of them were in action next day they received no further hits and sustained no fresh casualties. Only one Japanese vessel was temporarily out of action, the *Kasagi*; though the *Naniwa* had to sheer out of line and repair a shot wound which prevented her from rejoining her squadron till late in the night. The following table shows the number of hits reported by the Japanese and the loss in their twelve important armoured ships:

		Killed.	Wounded.	Hits.	
<i>Mikasa</i> ..	..	8	105	32	
<i>Shikishima</i> ..	..	13	24	10	
<i>Fuji</i> ..	..	8	22	11	
<i>Asahi</i> ..	..	8	23	9	
<i>Kasuga</i> ..	..	7	20	3	Vice-Adm. Mizu wounded.
<i>Nisshin</i> ..	..	6	14	11	
<i>Idzumo</i> ..	..	4	26	9	
<i>Adzuma</i> ..	..	11	29	16	
<i>Tokiwa</i> ..	..	1	14	9	
<i>Yakumo</i> ..	..	3	9	7	
<i>Asama</i> ..	..	3	13	11	
<i>Iwate</i> ..	..	0	14	16	
		—	—	—	
		72	313	144	
		—	—	—	

CASUALTIES IN JAPANESE CRUISERS. MAY 27-29

			Killed.	Wounded.
<i>Kasagi</i> ..	..	..	1	9
<i>Chitose</i> ..	..	..	2	4
<i>Otawa</i> ..	..	..	6	24
<i>Niitaka</i> ..	..	..	1	3
<i>Naniwa</i> ..	..	..	1	15

¹ Japanese official information.

CASUALTIES IN JAPANESE CRUISERS—*contd.*

			Killed.	Wounded.
<i>Akashi</i> ..	..	..	4	6
<i>Tsushima</i> ..	..	..	4	16
<i>Suma</i> ..	..	..	0	3
<i>Akitsushima</i> ..	..	..	0	2
<i>Chiyoda</i> ..	..	..	0	2
<i>Idzumi</i> ..	..	..	3	7
<i>Hashidate</i> ..	..	..	0	7
<i>Matsushima</i> ..	..	..	0	1
<i>Takachih</i> ..	..	..	0	4
<i>Chihaya</i> ..	..	..	0	4
			—	—
			22	107
			—	—

In the *Chinyen* and *Itsukushima* there were no casualties. One of the *Chitose's* 8-inch guns was put out of action by a heavy shell.

In the *Mikasa* the most serious damage was caused by a 12-inch shell which burst prematurely in the right gun of the fore turret, putting the gun out of action, though the left gun in the turret could still be worked. Superficially the damage to the ship looked extensive; actually it was not very serious. Of her wounded many afterwards died. Half a dozen of her smaller guns were disabled, having the muzzles shot off, but most of her battery remained effective. The main conning tower was struck and damaged and Togo had a very narrow escape outside it. The injuries of the *Shikishima*, *Asahi*, *Fuji* and *Kasuga* were slight, but the *Nisshin* which came last in the division had been the target of many Russian guns and had three of her heavy guns out of action through direct hits, and other hits on her turrets and funnels. The fore bridge was shattered, and Admiral Mizu was wounded by a splinter from a shell.

The *Iwate* was badly holed on the water-line, as was the *Asama*, but though the *Iwate* came second in the armoured ships in the number of hits she was the only vessel which had no killed. The total number of Russian hits on the twelve Japanese vessels in line was 138, and of these fifty-five produced 309 casualties out of a total of 459 casualties in these ships given in the Japanese returns. In addition to the direct hits there were many by splinters. The low Japanese loss is fresh proof of the protection which good gunnery gives. The large number of wounded is remarkable and is difficult to explain.

Shortly before the ALEXANDER III went down, Nebogatoff

hoisted the signal "Follow me," and took the lead in the Russian line with the NICHOLAS I, behind which ship came the OREL, APRAXIN, SENIAVIN and, at a considerable interval, USHAKOFF. Astern of this last ship again, at a considerable interval, were the NAVARIN, SISSOI and NAKHIMOFF. The IZUMRUD took station to port of the NICHOLAS I. To port of this line of battleships were the transports and Enquist with the cruisers OLEG, AURORA, JEMTCHUG, DONSKOI and VLADIMIR. All about the Russian formation gathered the Japanese torpedo craft as the night fell, and Nebogatoff, noting Japanese vessels ahead of him—as he thought dropping mines—turned away south-west and steered on that course till 8.20 p.m., when he turned north-east for Vladivostock, hoping to escape his adversaries. Enquist did not observe this last change and with the OLEG, AURORA and JEMTCHUG continued on a south-west course, and finally parted company with the Russian fleet.¹ He made first for Shanghai and proceeded thence to Manila where his ships were interned. Russian critics have blamed him severely (and with some reason) for thus bolting from the battle.

About 8 p.m. began the long series of Japanese torpedo attacks which continued almost without intermission for three hours, and were delivered by twenty-one destroyers, which mainly attacked the Russian van, and thirty-seven torpedo boats, which attacked from the east and south. The stormy south-west wind had fallen considerably by the evening, but Togo states in his official report that a "very heavy sea" was running which greatly impeded the torpedo craft. The night was fairly clear. The Russian battleships were steaming at 12 knots which was the most they could do; in their attacks the Japanese small craft pressed furiously in on them with such determination and carelessness of danger that there were several collisions. At first the Russians vanished from view, but then certain of them turned on their searchlights and thus betrayed their whereabouts. The NAVARIN was compelled to stop to place a collision mat over her worst wounds, when she was caught, four times torpedoed, and sunk with all the 622 men on board except three who were picked up sixteen hours later in the water by the Japanese small craft.

The SISSOI was torpedoed in the stern and sank very slowly; early next morning she went to the bottom off

¹ The OLEG's loss was reported as 15 killed and 30 wounded; the AURORA's 20 killed and 95 wounded; the JEMTCHUG's 14 killed and 31 wounded.

Tsushima just as the Japanese auxiliary cruisers were about to take possession of her. The NAKHIMOFF was torpedoed forward and, leaking badly, made for TSUSHIMA, off which islands she went down next morning; her crew opened her Kingston valves when Japanese cruisers and destroyers appeared, and thus prevented her capture. The VLADIMIR MONOMAKH was hit by a destroyer which steamed close up to her, and was left badly down in the water; her crew next morning opened the Kingston valves when the Japanese approached and sank her. Thus in the night attacks the Russians had two battleships sunk and two armoured cruisers so damaged that they were easily disposed of next day. The number of Japanese torpedoes fired was enormous—probably well over one hundred—but only seven hits were made. Nebogatoff's five leading ships escaped undamaged through the long series of onslaughts because they did not use their searchlights or show any lights. The Japanese loss was small: Torpedo Boats *No.* 34 and 35 were sunk by gun fire and *No.* 69 sank after a violent collision with the *Akatzuki*. The *Yugiri*, *Harusame* and *Sagi* were damaged by collision, but not very seriously, and five other destroyers and torpedo boats were put temporarily out of action. The total casualties in the torpedo craft, including loss in the daylight fighting, were only eighty-seven.

These night attacks inflicted the severest strain on the Russian crews in the ships which escaped injury. The gunners in the Russian Fleet had in most cases now been for twenty-four hours at their guns and for about six hours had been engaged in one of the fiercest naval battles which history records, whereas during the night Togo was able to rest the crews of his armoured ships. At the close of the daylight engagement, when he steamed north, he was about thirty-five miles north of Okinoshima and he fixed Matsushima as his rendezvous, over 200 miles north of Okinoshima. He steamed towards it all night at about 14 knots and was about thirty miles south-west of it at 5 a.m. of May 28. No Russian ships were then in sight, but almost at once he received from his 6th Division (the younger Togo) a wireless report that a group of Russian vessels had been discovered sixty miles further to the south, going northwards. The Japanese battle divisions steered towards them and sighted them at 9.30. They were the NICHOLAS I, OREL,¹ APRAXIN and SENIAVIN

¹ The OREL had been hit in her hull by twelve 12-inch, seven 8-inch, and twenty 6-inch shells; one 12-inch gun in her fore turret was broken by a direct hit; a

with the cruiser *IZUMRUD*, and they were speedily surrounded by all Togo's force and three divisions of Japanese cruisers. A few shots were fired by the Japanese, when, realising that the position was utterly hopeless, Nebogatoff hoisted the international signal of surrender. The *IZUMRUD*, his only fast ship, made off as quickly as she could at 10.34.

The arrangements for handing over the other four ships were quickly made and he was transshipped to the *Mikasa*, but before he quitted the *NICHOLAS I*, he made this short speech to his crew:

"I am only an old man of sixty, whose life is of trifling importance, but you are still young and charged with the duty of restoring the fame of the Russian Navy. I accept the entire responsibility for this surrender."

He said to Togo that he shrank from causing the death of 2,000 men under his orders in a useless resistance. Thus four ships, though one of them, the *OREL*, was severely damaged, were added to the Japanese strength forthwith.

The *IZUMRUD* was chased but shook off pursuit, only to run on the rocks of Vladimir Bay, north-east of Vladivostock, where she became a total loss. She lost 10 wounded in the battle. The *USHAKOFF*, which was some distance astern of Nebogatoff, was chased and attacked by the *Iwate* and *Yakumo*. Her captain called a council of war which decided to fight to the last and sink the ship, and this resolve was speedily put to the test. At 4 p.m. the Japanese armoured cruisers opened long-range fire on her to which she could make no effective reply; in about half-an-hour they had so damaged her on the water-line that from her heavy list the guns could not be trained; and the Kingston valves were opened. The ship sank under the Japanese fire which continued to the end, at 6 p.m. Of her crew of 422, 339 were rescued by the Japanese. This was the last of the twelve ships in Rojestvensky's line of battle to be taken or destroyed.

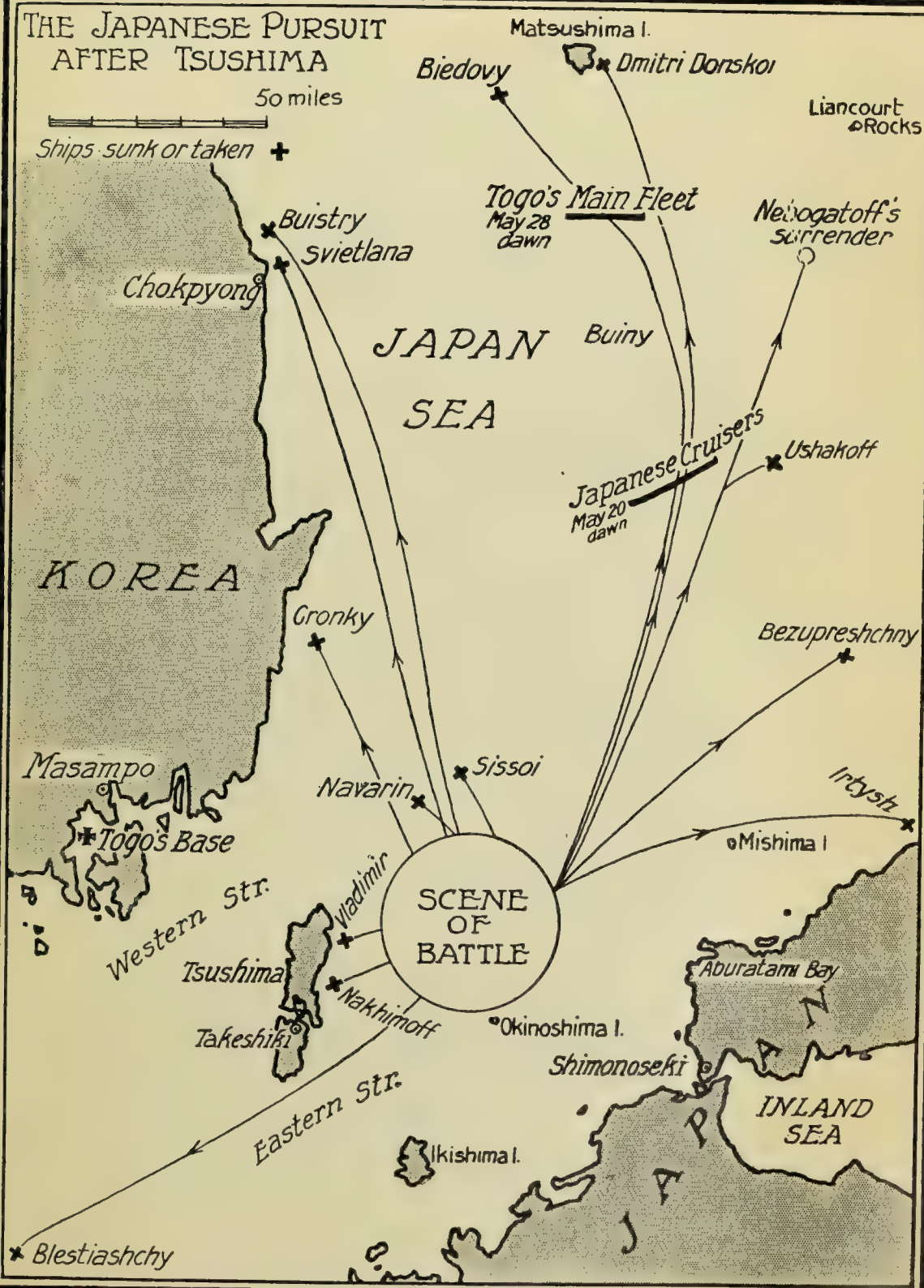
Of the other Russian ships the auxiliary cruiser *IRTISH*, badly damaged in the battle of the 27th, ran ashore near Minoshima Island to save her crew who were taken prisoners. The cruiser *SVIETLANA* was sighted early on the 28th by the *Otowa* and *Niitaka* south of Matsushima Island and was at

12-inch shell struck the base of one of her 6-inch gun-turrets, but without penetrating or disabling it. The after-turret had fired 113 rounds, and was still intact. The total number of hits on her was about seventy, and though she carried little wood she was repeatedly on fire. Her killed were 41 and her wounded 87. The *NICHOLAS I* had ten hits on her hull; the *APRAXIN* had one of her heavy guns disabled; the *SENAVIN* had only a few scratches.

THE JAPANESE PURSUIT AFTER TSUSHIMA

50 miles

Ships sunk or taken +



once chased. The SVIETLANA opened fire at 9.25 a.m., but the Japanese did not reply till 9.40; at 10 they hit the Russian cruiser in the stern and disabled her steering gear, so that she moved wildly, and at 10.40 almost ceased firing. She was in a sinking condition, but she did not go down till 11 a.m. The Japanese rescued 291 of her crew of 402. The *Otowa* was hit twice and had 5 killed and 23 wounded. Early that morning the Japanese cruiser *Chitose* and destroyer *Ariake* sighted and sank the Russian destroyer BEZUPRECHNY, none of whose crew of sixty-two was saved. After their action with the SVIETLANA the *Otowa* and *Niitaka* drove ashore on the Korean coast and destroyed the Russian destroyer BUISTRY, most of whose crew reached the land; about the same time further south the *Shiranui* destroyer chased and fought a fierce action with the GROMKY in which Torpedo Boat No. 63 joined on the Japanese side, and the GROMKY was so damaged that she sank after she had surrendered and had been taken in tow by No. 63. The *Shiranui's* loss was 6 wounded, the GROMKY's 8 killed and 15 wounded.

The destroyer BUINY in which Rojestvensky and his staff had embarked, was in company of the DMITRI DONSKOI and the destroyers BIEDOVY and GROSNY when day of May 28 broke. She was short of coal and had been damaged in action, and Rojestvensky was transferred from her to the BIEDOVY, while her hull was finished off with a shell from the DONSKOI. The BIEDOVY and GROSNY then went off north but were sighted that afternoon south-west of Matsushima by the Japanese destroyers *Sazanami* and *Kagero*. At 4.50 p.m. the BIEDOVY, intact and without having suffered any loss, surrendered. Rojestvensky, who was unconscious, had no part in this act. The GROSNY made off towards Vladivostock and managed to escape, though she was chased for some distance by the *Kagero*.

As for the DMITRI DONSKOI, she was sighted by the *Otowa* and *Niitaka* just as Uriu with his four cruisers was attacking her. With these six ships she fought from 6.30 p.m. till darkness, losing one-third of her crew.¹ During the night she was unsuccessfully attacked by the 2nd Japanese Destroyer Division, and despairing of escape, her captain landed her men on the island of Matsushima, and left a small party to scuttle the ship next morning (May 29). In the action with her the *Naniwa* was again hit on the water-line and in some

¹ Her chaplain states her loss at 60 killed and 120 wounded.

danger. The Russian cruiser ALMAZ¹ and destroyer BRAVY² reached Vladivostock by keeping close to the Japanese coast, after the battle of May 27. The destroyers BODRY and BLESTIASHCHY fled southwards on the 27th; and next morning the BODRY had to take on board the BLESTIASHCHY's crew as that vessel was in a sinking condition. The BODRY was left in a desperate position, short of fuel, drifting about the Yellow Sea. A British steamer found her on June 4 and towed her into Shanghai, where also the auxiliaries SVIR and KOREA arrived to be interned. The transport ANADYR fled from the Straits of Korea southward and was not again sighted till on June 27 she turned up at Madagascar.

Thus the Russian Fleet of thirty-eight vessels was in the naval sense annihilated, and two of its three admirals captured. The fate of its ships was as follows:

Line of Battle (12 ships):	OSLIABIA, ALEXANDER III, BORODINO' SUVAROFF, sunk in daylight battle, May 27; NAVARIN, sunk in night 27-28; SISSOI, NAKHIMOFF, USHAKOFF sunk on 28th; OREL, NICHOLAS I, APRAXIN, SENIAVIN, surrendered 28th.
Cruisers (8).	VLADIMIR, MONOMAKH, DMITRI DONSKOI, SVIETLANA, sunk on 28th; IZUMRUD, ran ashore on Siberian coast; OLEG, AURORA, JEMTCHUG, interned at Manila; ALMAZ, reached Vladivostock.
Destroyers (9).	BUINY, BUISTRY, BEZUPRESHCHNY, GROMKY, BLESTIASHCHY, sunk 28th; BIEDOVY, surrendered 28th; BODRY, interned at Shanghai; GROSNY, BRAVY, reached Vladivostock.
Auxiliaries (7).	KAMCHATKA, URAL, RUSS, sunk 27th; IRTISH, run ashore 28th; KOREA, SVIR, interned at Shanghai; ANADYR, escaped to Madagascar.
Hospital Ships (2).	OREL, KOSTROMA, captured 27th (KOSTROMA, afterwards released).

Of the whole fleet only three vessels, of insignificant force, reached Vladivostock; thirty-four were sunk, captured or

¹ Loss 5 killed, 10 wounded. ² Loss 9 killed, 5 wounded.

driven into internment, and one returned to Russia. Against this was a Japanese loss of three torpedo boats sunk and eight torpedo boats and destroyers temporarily disabled.

The casualties on the two sides were:

		Killed.	Wounded.	Prisoners.	Total.
Japanese ..	...	117	583	—	700
Russians ..	..	4,830	unknown	5,917	10,747

In addition 1,862 Russians were interned in neutral countries. The Russian loss was the heaviest known in naval war since accurate records were kept; the Japanese figures are official and for these I have to thank the courtesy of the Japanese Staff.

The result astonished the world which had never expected the Japanese to win with such consummate ease and without the loss of a single important ship. So terrible was the blow to Russia that thenceforward her government thought only of ending a war which had proved utterly disastrous to Russian interests, but before peace was concluded, by skilful operations in June and July, 1905, the Japanese took possession of Sakhalin and closely blockaded the mouth of the Amur and the Siberian coast.

The Japanese victory at Tsushima was due to good tactics, good gunnery and skilful leadership. There was no want of courage on the part of the Russians; they held out to the last, though they displayed throughout the battle no initiative or enterprise. In the long-range firing which took place before the fleets closed they did almost as well as the skilled Japanese gunners, which is in accord with experience in other actions of this war. The highest skill in gunnery is only effective at extreme ranges when it can make many hits within a short period of time.

When projectiles fall in a shower on a ship's hull, they completely paralyse the crew, and prevent good shooting, the repair of damage, and cool manœuvring. When there are considerable intervals between hits—as is generally the case at extreme range¹—men can recover themselves and do not lose self-control; leaks can be stopped and fires put out easily. Semenoff, who fought on August 10 in the DIANA and at Tsushima in the SUVAROFF, was struck by the extraordinary contrast between the Japanese fire in the two battles. In the first hits were occasional and the Russian morale was

¹ Jutland was an exception; at extreme range German hits were numerous.

not much shaken; in the second they were continual and paralysing in their effect.

The Russians fought without leadership. Rojestvensky proved himself a brave man, but a most unskilful commander. He made a disastrous mistake in not taking up his battle-formation sufficiently early and in attempting to alter it at the last moment. He allowed Togo to control his movements. How far his repeated wounds were responsible for his complete breakdown as a leader is not clear, but from 3 p.m. onward on May 27 he was so much injured as to be incapable of continuous thought. Togo and Kamimura showed leadership of a high order, and their subordinates displayed the very energy and initiative which the Russians lacked. Togo's determination to close to decisive range was worthy of himself, as also was his boldness in turning under the Russian guns at the outset. His judgment after the day-battle, in placing his fleet upon the Russian line of advance to Vladivostock, at Matsushima, was equally admirable. He correctly appreciated the difficulty of handling a large force of ships effectively in battle by giving Kamimura complete control of one powerful division, just as Nelson gave Collingwood complete control of the leeward division at Trafalgar; and Kamimura used his opportunities magnificently.

Nebogatoff was bitterly criticised for his surrender and was for it afterwards condemned to death by the court martial which tried him. The sentence was not carried out, and he was ultimately pardoned after three years' imprisonment. His evidence showed that his ships were in a wretched state. The despatch of his squadron was in his own judgment inadvisable, because of the lack of trained ratings, but it was the result of Admiral Birileff's advocacy in persuading the Russian naval authorities that the guns in the Japanese Fleet were worn out—a lamentable delusion. Crews were therefore obtained for this make-believe squadron by sending on board the ship the worst characters who came from prisons, disciplinary battalions, and even from hospital. Among them were many who had never even seen the sea, while his petty officers were poorly instructed in the first instance, and had been so long in reserve that they had forgotten all they once knew.

Owing to the excessive load of Nebogatoff's ships the armour belts of the USHAKOFF class and NICHOLAS I were under water. The guns were mostly of old pattern and low range, while the shells lacked power when they exploded.

As for the OREL, the whole class to which she belonged was so unstable that Rojestvensky's technical advisers warned him that before action they must be lightened as far as possible, in order to avert the danger of their capsizing.¹ In the APRAXIN the 10-inch guns were extremely unsafe, and showed weakness at the end of the first day's battle. In the SENIAVIN when practice was carried out in the Bay of Biscay the concussion opened many seams and caused bad leaks. The Russian gunners were generally inefficient, and could not be given proper training because ammunition was short in the fleet.

The captains who surrendered with Nebogatoff, with the exception of the OREL's commander, were sentenced to ten years' imprisonment for their conduct, but they did not serve that term. There is a strong sentiment in all navies against surrender, which is a modern product, as in the old wars it was regarded as in no way dishonourable to strike after a gallant and determined resistance. Nebogatoff's position was hopeless; he was outnumbered and outranged, and if he had directed his ships to resist, they would have been shot to pieces without being able to reply to the Japanese. As he stated, he gave the order to open fire, but was told by his gunnery staff that it was useless because the range was too great. Perhaps the best comment on his conduct is the opinion of a British admiral, renowned throughout the British service for his signal courage, which was given me in the hours when we watched the surrender of the German Fleet on November 21, 1918. I asked him whether he thought the German Fleet ought to have perished in a last great battle. He said, "No, enough blood has been shed; no man doubts their courage and their situation is hopeless."

Rojestvensky insisted on being tried by the court martial which dealt with the officers who had surrendered the BIEDOVY, when he was on board. He was severely wounded, as also was Semenoff, one of his staff, but three unwounded members of the staff were found by the court to be guilty and were condemned to be shot. Among them was Rojestvensky's flag-captain, Clapier de Colomb, the others being Colonel Filipoffsky and Lieutenant Leontieff. The ground for their condemnation was that they had not shown sufficient energy in moving to another battleship when they left the SUVAROFF, and that their plea that their surrender was only made to save a life precious to Russia in Rojestvensky, was a mere excuse

¹ They seem to have been lightened and performed well in battle.

CHAPTER XV

Italian Ultimatum to Turkey—Superiority of Italy at Sea—Tripoli Bombarded—Tobruk Seized—Action at Beirut—Operations in Aegean—Bombardment of Dardanelles Forts—Rhodes Captured—Greek War with Turkey—"Feth-i-Boulend" Torpedoed—"Hamidieh" Torpedoed but not Sunk—Actions off the Dardanelles—The Greeks Superior—Strange Cruise of the "Hamidieh."

ON September 28, 1911, the Italian Government sent an ultimatum to Turkey, announcing its intention to occupy Tripoli and requiring the acceptance of its demands within twenty-four hours. When the reply was unsatisfactory, at 2.30 p.m. on September 29, war began. The Italian Navy rapidly mobilised and completed preparations for the embarkation of a military force of 30,000 men. For years it had been testing its arrangements for such an operation; and by various treaties and agreements with the great Powers its right to occupy Tripoli had been recognised. Its strength was so overwhelming that there was little prospect of a naval encounter, which would certainly have meant the annihilation of Turkey's insignificant fleet.

The main force of the Italian Navy was organised in two squadrons, each of two divisions. To each division was attached a division of four destroyers. The following were the commanders and ships in the organisation:

- 1ST SQUADRON. Commander-in-Chief, Vice-Admiral A. Aubry.
1ST DIVISION: *Vittorio Emanuele III*, *Regina Elena*, *Napoli*,
Roma, each 12,625 tons, 22 knots, two 12-in.
and twelve 8-in. guns.
2ND DIVISION: (Rear-Admiral E. Presbitero) *Pisa*, *Amalfi*, *San*
Marco, each 10,000 tons, 22 knots, four 10-in.
and eight 7.5-in. guns, *Agordat*, torpedo gun-
boat, 1,313 tons; *Partenope*, mine-layer, 834
tons.
2ND SQUADRON. Vice-Admiral Faravelli.

- 3RD DIVISION: *Benedetto Brin*,¹ 13,400 tons, 20 knots, four 12-in., four 8-in., and twelve 6-in. guns; *St. Bon*, *Emanuele Filiberto*, each 9,800 tons, 18 knots, four 10-in. and eight 6-in. guns.
- 4TH DIVISION: (Rear Admiral P. Thaon di Revel) *Garibaldi*, *Varese*, *Ferruccio*, each 7,400 tons, 20 knots, one 10-in., two 8-in., and fourteen 6-in. guns; *Marco Polo*, 4,500 tons, 19 knots, six 6-in. guns; *Coatit*, torpedo gunboat, 1,313 tons; *Minerva*, minelayer, 846 tons.

In addition to the above was the Training Division under Rear-Admiral B. Ricci, composed of the old battleships *Re Umberto*, *Sicilia*, and *Sardegna*, each mounting four old pattern 13.5-inch guns besides smaller weapons, and the armoured cruiser *Carlo Alberto*, carrying twelve 6-inch guns. For operations in the Adriatic a force of torpedo craft was told off under the Duke of the Abruzzi, whose flag was hoisted in the armoured cruiser *Vettor Pisani* (6,500 tons, twelve 6-inch guns) and who had with him the old light cruiser *Lombardia* and a dozen destroyers and torpedo boats. The Italian force was the more formidable because it was composed of modern, powerful and well designed ships, carrying exceptionally heavy armaments of long-range guns. It had at its disposal a number of small submarines, but they played no part in the operations. In the Red Sea, where Italy owned the colony of Eritrea, fronting the Turkish possessions in Arabia, a squadron of six light cruisers with six torpedo boats was ready to begin operations.

The Turkish Navy at the outbreak of war only included four effective vessels of any considerable size. Two of these were old battleships, *TORGUT REIS* and *HAIREDDIN BARBAROSSA*. Launched in 1891, they were bought from Germany and each mounted six 11-inch guns. With them were two light cruisers, *HAMIDIEH* and *MEDJIDIEH*, which were of fairly modern type and capable of steaming 20 knots. These four ships with five modern destroyers left Beirut on September 28 in ignorance that war was imminent. Had the Italians wished to destroy this little squadron they could easily have done so. Their aim, however, was not to shatter Turkish power, but only to secure Tripoli; and throughout their operations they did their very utmost to avoid unnecessary bloodshed. The Turkish squadron received warning of war on September 30 and at once retired to the Dardanelles.

¹ Later reinforced by the *Regina Margherita*, sister ship of the *Brin*.

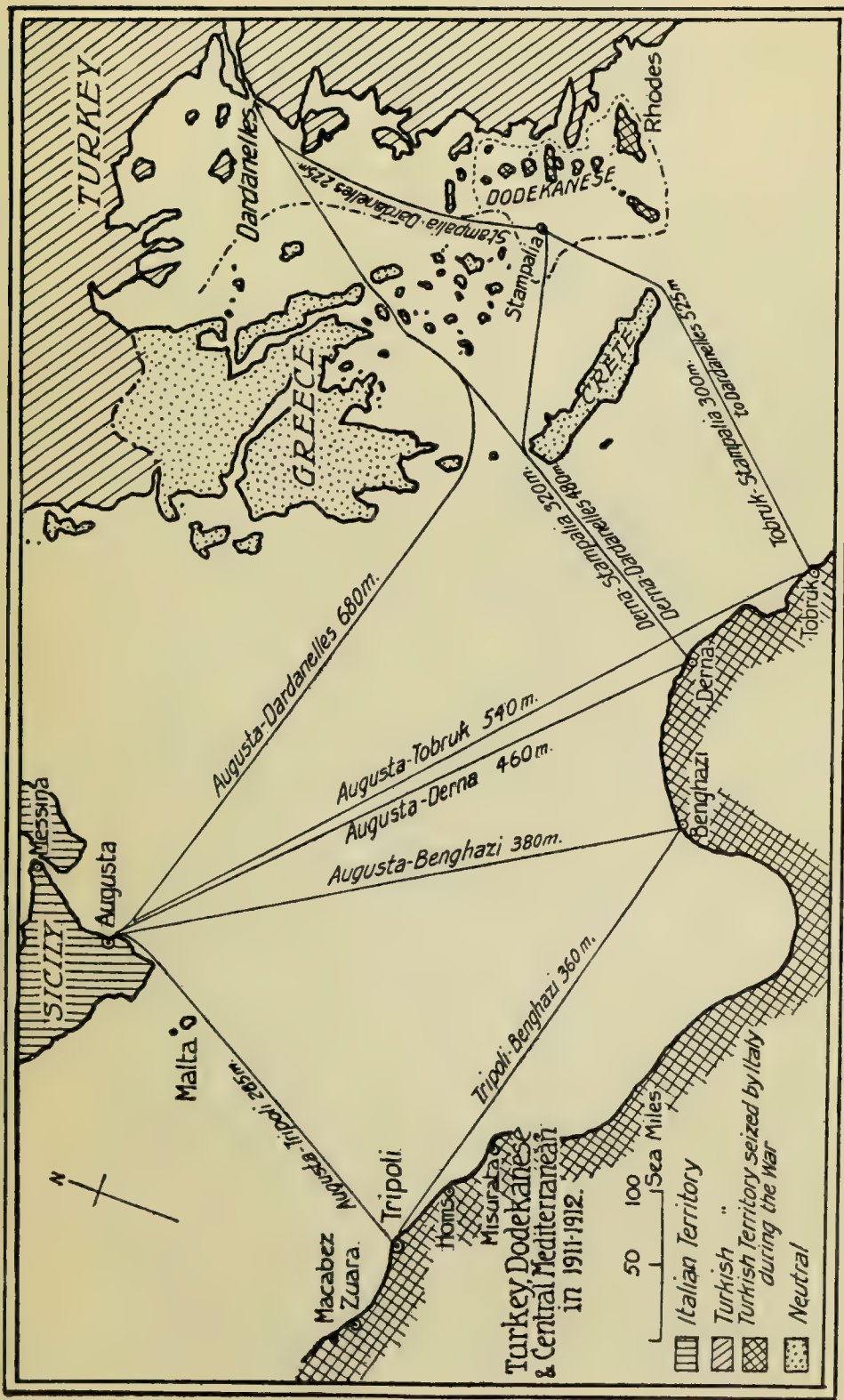
Aubry's strategy was sound. Before attacking at Tripoli he made certain that the Turks were not going to fight, and swept the Ægean clear of Turkish vessels. The first shots were fired in the Adriatic where the Turks maintained a few weak torpedo craft for customs purposes. Commander Ricci with four Italian destroyers in the afternoon of September 29 caught two Turkish torpedo boats which were coming out of Preveza harbour, and opening fire on them with his 12-pounders at a range of 3,000 yards hit one of the two repeatedly and drove her ashore, where she was destroyed. She was the *TOKAT*, a modern boat of 177 tons.

The second boat, the *ALPAGUT*, fled into Preveza harbour and was afterwards sunk there. The same day Commander Biscaretti, with two destroyers, sank the Turkish destroyer *TAJAR* of 270 tons at Gumenitza, opposite Corfu and the Turkish torpedo boat *ANTALIA*¹ (a sister of the *TOKAT*). By October 1, when the *Marco Polo* captured a Turkish steamer with troops at San Giovanni di Medua, all the Turkish vessels on the coast were accounted for. As the Austrian Government showed some irritation at the Italian operations on the Albanian coast and a strong Austrian squadron assembled at Bocche di Cattaro, the Italians decided to take no further action in the Adriatic. They had already accomplished their purpose, which was to protect the Italian seaboard against raids by any Turkish small craft.

For the operations against Tripoli the Italian Navy used a base at Augusta in the south-east of Sicily which was excellently placed, 285 miles from Tripoli, 460 from Derna, and 680 from the Dardanelles. Faravelli left Augusta on September 29 with the *Brin*, *Sardegna* and *Umberto*, and off Tripoli joined Thaon di Revel, who had left Spezia on September 24 with the 4th division and the 2nd division reinforced by the *Carlo Alberto* (twelve 6-inch guns) and *Filiberto*. On September 29 a blockade of the Tripoli coast was proclaimed, and on October 2 Thaon di Revel summoned the acting Governor of Tripoli to surrender, warning him that in the event of non-compliance with the summons Tripoli would be bombarded next day. All communication between Tripoli and Turkey was destroyed. The cable was cut and the wireless station at Derna was put out of action by the *Pisa* on October 1. On October 3 as the Turks refused to hand over Tripoli, Faravelli took action.

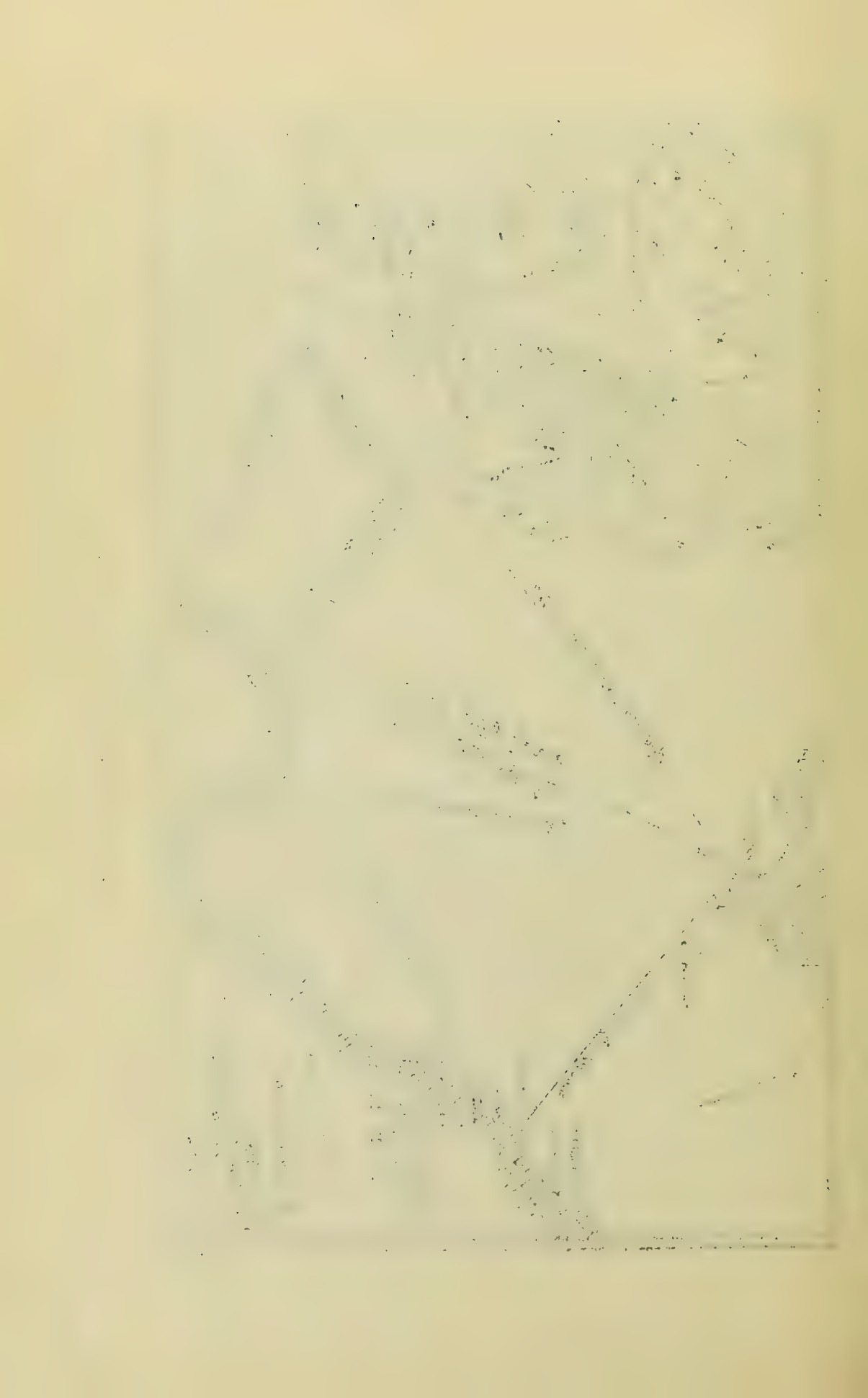
The Turkish force ashore consisted of 4,500 regulars and

¹ She was afterwards raised by the Turks and figured in the war of 1912-13.



PLAN 21

THE ITALIAN OPERATIONS AGAINST TRIPOLI



2,500 militia. The defences were of old type armed with antiquated guns—the most powerful of them 9.4-inch Krupps of early pattern—and the supply of ammunition was scanty. West of Tripoli was Fort Sultanieh and another work known as Fort B. This group of works had the best guns in the Turkish defences and was to be attacked by the *Umberto*, *Sardegna* and *Sicilia* with their 13.5-inch guns. In front of the city, in the central sector, were the Lighthouse Battery and the Mole Fort, of brick, mounting nothing more formidable than their old 6-inch guns. Under Faravelli's direct orders the *Brin*, *Filiberto*, and *Carlo Alberto* were to attack these works. To the east was yet another work, Fort Hamidieh, which was to be bombarded by the *Garibaldi*, *Ferruccio* and *Varese*. The instructions to the ships were to use their heavier guns, remaining outside the range of the Turkish forts. At 3.30 p.m. fire was opened at a distance of 7,700 yards; the Turkish reply was feeble, no doubt because it was realised at once that the ships were out of range. At 6.10 that evening firing ceased after about 400 rounds had been discharged, and the forts having been reduced to heaps of ruins, the ships put to sea.¹

Early next morning the bombardment was resumed and continued until it seemed certain that the works were wrecked, when at noon the firing ceased. The torpedo boat *Albatros* entered the harbour to reconnoitre, whereupon a few shots were fired at her. She reported that Fort Hamidieh seemed in ruins. On October 5 under cover of the guns of the three *Umbertos* which anchored close to Sultanieh, a naval brigade of 1,732 men, under Commodore U. Cagni, disembarked at that point and speedily occupied the fort and Tripoli itself. The *Varese* steamed close in to Hamidieh, where a magazine blew up with extreme violence after a short bombardment. The Italian ships in this affair suffered no loss; the Turkish casualties were returned by the Turkish commander as 12 killed and 23 wounded.² Great care was shown by the Italians in sparing the town and all neutral buildings, though a shell which exploded near one of the consulates killed four men. On October 10 the first vessel of the fleet of transports with Italian troops on board began to arrive; two days earlier the Turks had attacked the naval brigade on the land front, but had been repulsed with the aid of the ships.

During these operations Aubry seized the important harbour of Tobruk in the extreme east of Tripoli on October 4.

¹ For the defences see Plan XXII, p. 272.

² Graevenitz, i, p. 32.

It was converted by the Italians into an advanced base and was admirably situated for operations in the eastern Mediterranean. The Turks made only a show of resistance and the place was held by a naval brigade until troops arrived on October 10. The Italian cruisers and small craft diligently watched the Ægean for any sign of Turkish action while these operations were going forward, but the Turkish Navy remained inert. The odds against it were such that it had no chance of effecting anything. Its only two good cruisers, the HAMIDIEH and MEDJIDIEH, had too small a coal endurance to attempt any raids. During October the important places on the Tripoli coast—Derna, Benghazi and Homs—were occupied, and a fleet of seventy-five transports, fifty-five carrying troops and twenty material, landed the expeditionary force of 30,000 men to complete the conquest of the country. This force was followed by other detachments until, by the end of the year, a total of 101,389 officers and men with 400 guns had been transported oversea.

In the Red Sea the torpedo gunboat *Aretusa* (one 4.7-inch and six 6-pounder guns) sank two Turkish motor boats near Hodeidah, and with other Italian light cruisers, drove the Turkish torpedo gunboat PEIK-I-CHEFKET (two 4.1-inch and six 6-pounder guns) under the shelter of the fort at that place. On November 5 the light cruiser *Puglia* (two 6-inch and eight 4.7-inch guns) sank an old Turkish gunboat at Akaba; and on November 30 the old gunboat *Volturno* (four 4.7-inch guns) bombarded Turkish works at Mocha and Sheik Said, opposite the British possession of Perim. On January 7, 1912, the Italian light cruisers *Puglia*, *Piemonte* (two 6-inch and ten 4.7-inch guns) and *Liguria* (armament as the *Puglia's*) with two destroyers drove seven Turkish gunboats and an armed yacht into the harbour at Kurfuda, midway between Jeddah and the Farsan Islands, where the Turks took shelter under batteries on the land. The Italian squadron bombarded the batteries and shelled the gunboats. On January 8 the gunboats were destroyed and the yacht captured. There were no casualties in the Italian squadron in this operation. On January 22 a formal blockade of the southern portion of the Turkish Red Sea coast was proclaimed.

In January, 1912, an incident occurred which caused friction between Italy and France. An Italian destroyer stopped and took into Cagliari, in Sardinia, the French mail steamer Carthage, en route from Marseilles to the French port of Tunis, on the ground that she had an aeroplane on board which

was intended for the Turks. The affair was happily settled, the Italian Government releasing the ship when the owner of the aeroplane gave a guarantee that it should not be used by the Turks. This was another example of the doctrine of continuous voyage.¹ A similar incident occurred about the same time with regard to the French mail steamer *Manouba*.

As the Turkish Government refused to discuss peace, the Italian Government was forced to exert further pressure upon it. On February 20, 1912, the powerful armoured cruisers *Varese*, *Garibaldi* and *Ferrucio* left Tobruk for Beirut, in which Syrian harbour there were known to be two Turkish vessels, the ancient armoured corvette *AVNI-ILLAH* (2,314 tons, 6-inch iron armour, four 6-inch guns) and the torpedo boat *ANGORA*, a sister of the *TOKAT*. Early on February 23 the Italian cruisers were off Beirut and demanded the surrender of the two Turkish warships by 9 a.m. As no reply was given, the Italians opened fire at 9.12, and the *AVNI-ILLAH* returned the fire, but after a few minutes was badly hit, burst into flames and the Turkish flag was lowered. Her crew must have opened the Kingston valves as she sank shortly afterwards. The *ANGORA* fled into the interior of the harbour where she took shelter behind neutral shipping, but the *Garibaldi* followed her in and disposed of her. Some little damage was caused ashore by shells from the Italian ships, though the Italian commander did his best to spare the town and the civilian casualties were few.

On March 4, Aubry died of peritonitis at Taranto and was succeeded by Faravelli, Vice-Admiral Leone Viale taking command of the second squadron. A month later Faravelli, whose health was bad, asked to be relieved, and was succeeded in the chief command by Viale, while Vice-Admiral Amero d'Aste Stella received command of the Second Squadron. A more vigorous policy was now adopted in order to bring the Turks to terms. On April 10 the Italian warships *Sardegna*, *Sicilia*, *Ré Umberto*, *Carlo Alberto*, *Marco Polo*, *Agordat* and *Coatit*, with two auxiliary cruisers and six torpedo craft, convoyed a force of 12,000 troops to Zuara in the extreme west of Tripoli. Part of this squadron bombarded the Turkish works at Zuara and made a feint of landing there, but the main body of troops was disembarked further west, at Macabez, where was a Turkish port close to the Tunisian frontier. Notwithstanding bad weather and a heavy sea the troops were safely landed and the fort at Macabez was seized on the following day. Zuara still held

¹ See page 24 and page 112.

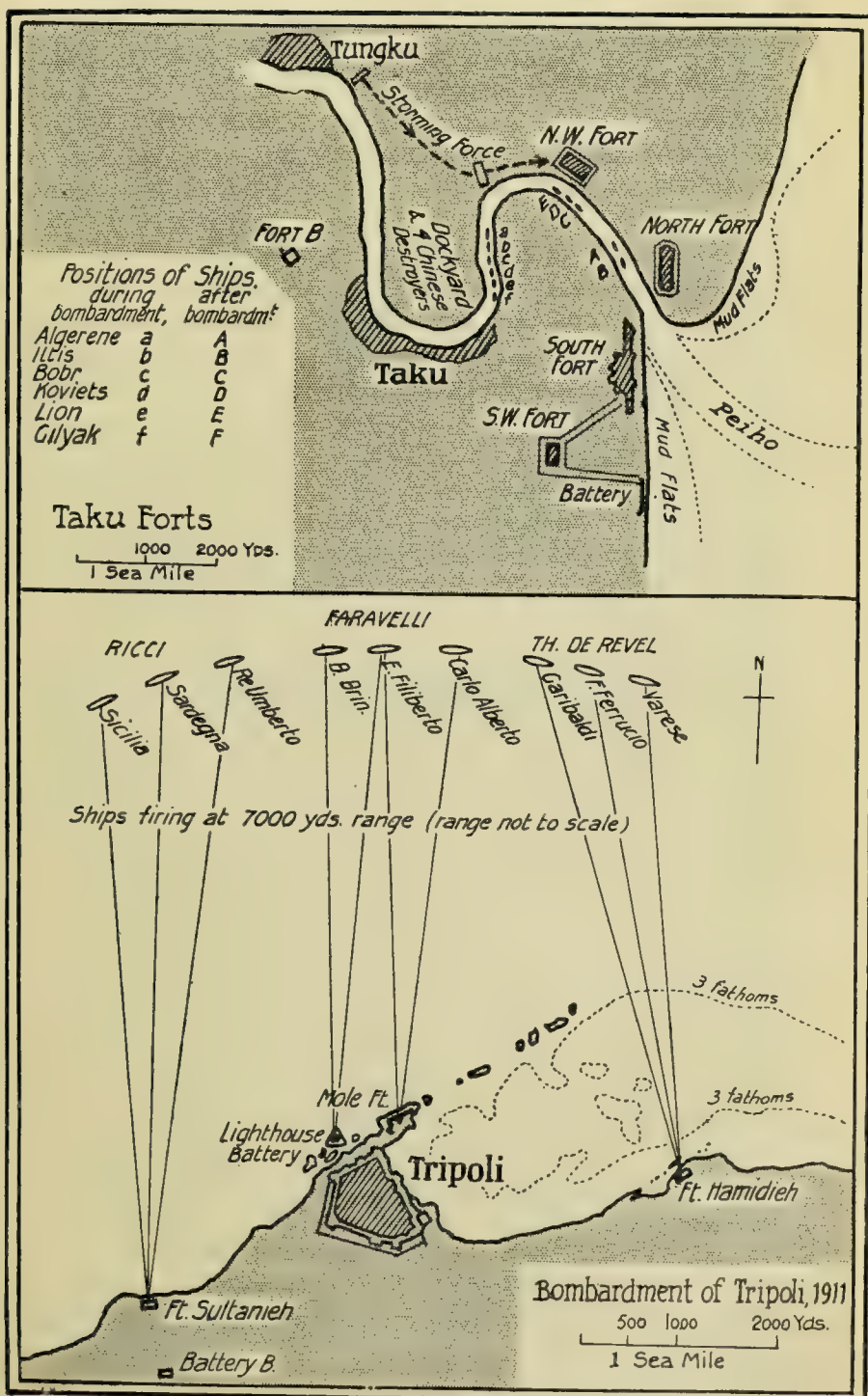
out, and was not secured till near the end of the war. Its value had vanished with the Italian army and navy in control of the caravan route to Tunis, by which arms and munitions had been despatched to the Turks in the province of Tripoli.

But the new sphere of Italian naval activity was in the Ægean. In complete secrecy, aided by the excellent censorship on news which the Italian Government enforced, preparations were made at Tobruk for extensive combined operations. As a prelude to them a naval demonstration was carried out against the Dardanelles. On April 17 a powerful fleet consisting of the 1st, 2nd and 4th Divisions, with a cable ship and torpedo craft, assembled at the island of Stampalia, which the Italians seized as an advanced base some days later, on April 23, and which was invaluable from its fine harbour and strategic position, distant 300 miles from Tobruk and 225 from the Dardanelles. The Italian force then proceeded towards the Dardanelles, cutting the cables between Imbros, Lemnos and Tenedos and the mainland.

Early in the morning of April 18 the Italian armoured cruisers *Pisa*, *Amalfi* and *San Marco* were sighted by the Turks outside the Dardanelles and beyond the range of the forts. They steamed to and fro with the object of inducing the Turkish squadron, which was at anchor inside at Nagara, to come out. As no Turkish vessel showed itself, Viale brought up the rest of his armoured ships which consisted of the *Vittorio Emmanuele*, *Roma*, *Napoli*, *Regina Margherita*, *St. Bon*, *Ferruccio*, *Garibaldi*, *Varese* and *Vettor Pisani*, in addition to the three vessels already mentioned. A Turkish destroyer thereupon appeared and was chased by the *Garibaldi*, *Varese* and *Ferruccio* back under cover of the forts. The Italian ships steamed to about 9,500 yards from Orkanieh Fort, which opened on them with two 9.4-inch guns and smaller weapons, while Fort Kum Kaleh joined in with its heavy guns ranging from 6-inch to 11-inch.

The Italian ships drew out, but in the early afternoon the whole armoured force in line ahead steamed in towards the forts and at 1.15 p.m. opened fire at a range of 12,000 to 13,000 yards.¹ The bombardment continued slowly and deliberately for two hours during which time the Italians discharged 342 shells from their heavier guns, and the Turks fired about 150 projectiles. As in the British attacks later, the effect of the bombardment seemed great to observers on board the ships, and the works, appeared to have been almost

¹ For Dardanelles defences see Plan XXVII, p. 74.



destroyed. The real damage was not serious; the Turkish casualties were reported at 15 killed and 18 wounded, but at the time the Italian fire was said to have caused "hundreds of casualties." The Italian ships were not hit, though the *Ferruccio's* colours were shot away, and they had no casualties. The Turkish Government closed the Dardanelles with mines, while the Italian Fleet retired to Mudros. There it could efficiently watch the Turkish squadron. The affair was only a demonstration and a reconnaissance, as the Italian Staff was convinced that a serious attack on the Dardanelles would require a very large military force, estimated at about 200,000 men.

Under cover of this demonstration Italian ships destroyed the Turkish wireless stations in the Sporades, and the Italian Staff completed preparations for the seizure of Rhodes. On May 3 the 1st Italian Division appeared off that island and sent in a summons to the Governor of Rhodes to surrender, while an expeditionary force of 8,000 men was disembarking ten miles south of the town of Rhodes, which was occupied on the following day with the aid of the *Brin* and *Filiberto*.¹ On May 17 the Turkish garrison surrendered. Meanwhile, the Italians took possession of the Dodekanese, twelve islands in the Ægean, and led the Turks to imagine that they contemplated a landing in great force in Asia Minor. Large Turkish armies were concentrated near the Dardanelles and at Smyrna. Skirmishing proceeded between Italian small craft and large ships and the Turkish batteries and detachments ashore on the Ægean coast. On July 18 a bold raid on the Dardanelles—to test the defences—was carried out by the five first class torpedo boats, *Spica*, *Perseo*, *Centauro*, *Climene* and *Astore* under Captain E. Millo. These boats each displaced 210 tons, steamed 25 knots, and carried three 18-inch torpedo tubes. Led by the *Spica* they approached the Dardanelles at 11.30 p.m. on July 18 in line ahead and were not detected by the four Turkish searchlights which were working.

In the early morning of the 19th they arrived off Sedd-el-Bahr, where a searchlight caught them in its beam and the Turks opened fire. Millo increased speed first to 20 and then to 23 knots and made straight for the Narrows which he reached without any misadventure, though the Straits were ablaze with the beams of the searchlights and with the flash of the Turkish guns. At Kilid-Bahr, however, progress was stopped by a boom which had been moored across the Straits with steel cables. Beyond the boom lay the Turkish squad-

¹ Graevenitz, iii, p. 46 fp.

ron which opened a violent fire on the torpedo craft and concentrated its searchlights upon them. There was nothing more to be done, and Millo turned. The little squadron emerged from the Dardanelles without loss and with only a few unimportant hits. Millo was most deservedly promoted to the rank of rear-admiral for his gallantry.

In Tripoli, Misurata, east of the town of Tripoli, was seized on June 16, and in August the Training Division with a strong landing force captured Zuara, the last place of any importance left on the coast to the Turks. In the Red Sea the blockade was extended in April to the island of Camaran, and in June the Farsan Islands were occupied, while in July the cruisers *Piemonte* and *Aretusa* shelled the Turkish military establishment at Hodeida. Operations ceased at midnight, September 18-19, Turkey having accepted the loss of Tripoli and the Ægean Islands, which remained in Italian possession.

The war was noteworthy for the excellent employment of combined forces, military and naval; for the numerous skilful disembarkations and for the extremely successful use of the censorship on news by the Italians. The disparity between the Italian and Turkish fleets was too great for the operations to yield much information on questions of strategy or tactics, but the reconnaissance at the Dardanelles convinced all who took part in it that the forcing of the straits would be a difficult task, even with a strong land expedition. Unfortunately the lesson seems to have been overlooked by the British Government.

The Turks were given barely a month of peace before a fresh war began for them on October 17, 1912, this time with the Balkan League, consisting of Bulgaria, Greece, Serbia and Montenegro. The Turkish Navy was just as it was when the Italian war closed; on paper it should have been distinctly superior to the forces of the Allies, only one of whom, Greece, had a fleet and that a small one. Bulgaria, to protect her coast line, had nothing more than six mediocre torpedo boats. The Greek Navy only included one moderate sized armoured ship, the *Georgios Averoff*, launched in 1910, of 9,960 tons with a broadside of four 9.2-inch and four 7.5-inch guns, all powerful quick-firing weapons. Her armour was 7 to 8 inches thick of hardened steel, and she steamed 20 knots in 1912. The *Spetsai*, *Psara* and *Hydra*, the other three Greek armoured vessels, were sister-ships of 4,885 tons each, of antiquated type with a broadside of two

10.6-inch and two 6-inch guns, all of old pattern. They were good for 14 or 15 knots.

The Greek Navy also possessed fourteen good destroyers, four of which were flotilla leaders, capable of steaming 32 knots. They were bought on the eve of war in England where they had been built for the Argentine. There was one submarine, the *Delphin*, of French type, twenty small and old torpedo boats, and various small cruisers, gunboats and sloops. The Greeks are a race of seamen which the Turks are not, and the Turkish Navy made no determined effort to try conclusion, though a decisive defeat of the Greek Navy at the outset would have gone far to prevent the Allies' success. A large part of the Turkish army was in Asia Minor when the war began, as it had been sent there to meet the risk of an Italian landing, and it could not be quickly transferred to Europe without the command of the Ægean.

The strategy of the Greek Navy was good. Its chief task was to seal the Dardanelles and deal with the Turkish squadron. A secondary objective was to obtain control of the Gulf of Arta, the entrance to which was commanded by Turkish forts at Preveza. This task was undertaken by Captain Damianos with a small flotilla of two torpedo boats and half a dozen gunboats. With his two torpedo boats he ran past the forts at night unobserved on October 18-19, 1913. Inside the gulf was the Turkish torpedo boat *ANTALIA*; she was surprised, and scuttled herself a second time¹ when Damianos with his two boats came on her. The forts at Preveza succumbed to the attack of a Greek land force on November 4.

For operations against the Dardanelles an advanced naval base was required, to lessen the strain of blockade on the Greek Fleet. It was decided to seize Lemnos, which has a fine harbour in the Bay of Mudros, afterwards used by the British and French in the campaign of 1915. For that purpose the main Greek force left Athens on October 18, under the orders of Rear-Admiral P. Condouriotis. It consisted of the *Averoff*, *Spetsai*, *Hydra* and *Psara*, fourteen destroyers, five modern torpedo boats, the submarine *Delphin*, the mine-layer *Ares*, a hospital ship and various transports and auxiliaries taken over from the Greek merchant marine. They were off Lemnos on October 20, and there on the following day landed a force of 500 men who occupied Castro that same evening. In the next few days the Greeks seized the islands of Tenedos, Thasos, Imbros, Strati, and

¹ She was sunk first in 1911 in the Italian war.

Samothrace undisturbed. With their torpedo craft watching the Dardanelles they paralysed the Turkish Navy.

At that date the old Turkish armoured corvette FETH-I-BULEND, a vessel of 2,720 tons, launched in 1870 but reconstructed in 1905, was lying at anchor at Salonica, where she was acting as guardship. In the night of October 31 she was attacked by the ancient Greek torpedo boat No. 11 (launched in 1881 and carrying two tubes of obsolete type for 14-inch torpedoes) under Lieutenant Votsis. The charge in the head of the torpedoes seems to have been only about 50 pounds. Votsis at full speed (which did not probably much exceed 10 knots) entered Salonica harbour unobserved, though the searchlights of Fort Karaburnu at the entrance swept the channel, steamed straight towards the FETH-I-BULEND and at 11.35 p.m., at a range of 150 yards, fired his first torpedo, followed by a second at still closer range.

Both torpedoes struck the FETH-I-BULEND. She listed sharply to starboard having been hit on that side a little forward of the funnel. Votsis, going astern, fired a third torpedo which missed and hit the pier, and then, seeing that the hostile vessel was rapidly sinking by the bows, left the harbour without being hit. There was a moon that night but it was hidden by cloud at the moment of his most gallant attack. Of the 148 officers and men on board the Turkish corvette 14 were killed.¹

In November the Greek Navy disembarked small forces in the two important islands of Mitylene and Chios, but in both the Turkish garrisons held out for some weeks, finally surrendering in December and January, 1914. Greek transports covered by the warships were also used to move Bulgarian troops from Salonica, when that place fell into Greek hands on November 8, to Dedeagatch. All through the initial period of the naval war the Turkish Navy was employed without judgment, in futile operations against the Bulgarian coast in the Black Sea. On October 19 the BARBAROSSA, TORGUT REIS, MESSUDIEH,² HAMIDIEH and four torpedo boats appeared off Varna, drove back the Bulgarian torpedo boats which were scouting, and fired forty-five shells into that town on October 20. The following day they shelled a Bulgarian military depot at Kavarna, where they did some damage, and all but captured two small Bulgarian torpedo craft.³

¹ *Ereignisse zur See*, p. 33.

² Launched 1874, reconstructed 1904. Broadside, two 9.2-inch and six 6-inch guns.

³ *Ereignisse zur See*, p. 58.

In view of the rapid progress of the Bulgarian armies on land the Turkish armoured ships withdrew to the Sea of Marmora to support the Turkish forces before Constantinople, leaving the cruisers and torpedo craft to blockade the Bulgarian coast. They were thus engaged when very early in the morning of November 21 four Bulgarian torpedo boats (launched 1907, 100 tons, 26 knots, three 18-inch tubes) made a skilful and bold attack on the Turkish squadron, then at sea off Varna. It was pitch dark and the Bulgarian vessels were at first mistaken for Turkish destroyers. The Turks, however, opened fire on them at 2,000 yards; ten torpedoes fired by the Bulgarians missed, but the eleventh, fired 200 yards off, hit the HAMIDIEH while she was in motion, on the starboard side forward, blowing a hole in her 10 feet in diameter. She was badly damaged and was only got back to Constantinople with great difficulty, in imminent peril of sinking as her bows were flush with the water. Seeing her plight, the Bulgarian torpedo craft renewed their attacks but were not able to destroy her. They appear to have escaped without serious damage, and they only reported the loss of 2 wounded. The Turks lost 8 killed. This affair ended the attempt to blockade the Bulgarian coast.

In the Sea of Marmora the Turkish battleships gave valuable aid to the Turkish land forces holding the Chataldja lines before Constantinople. Their fire from the Bay of Chekmedje on November 17 and 18 contributed in no small degree to the Bulgarian repulse. On December 3 an armistice between Turkey on the one hand and Bulgaria, Serbia and Montenegro on the other, was signed, Greece declining to agree to any interruption of hostilities; and the Turkish Fleet was set free. Some days before the armistice a Turkish squadron, including the two protected cruisers and the two battleships, arrived in the Dardanelles and made preparations for a naval action. The MEDJIDIEH with four large Turkish destroyers (launched 1909, each 610 tons, 30 knots, two 3.4-inch guns) showed themselves outside the Dardanelles on December 14, where they found seven Greek destroyers on the alert. The Greeks, chasing one of the Turkish destroyers, came within range of the forts, which opened fire.

Warned by wireless, Condouriotis with his four armoured ships and four large destroyers put to sea from Lemnos that afternoon and relieved the smaller destroyers off the Dardanelles. He patrolled the entrance that night and the following day till, at 8 a.m. of December 16, he heard that

the MEDJIDIEH was in sight coming out with eight destroyers. The weather was clear with a slight haze and the sea was smooth. At 8.45 the Turkish armoured ships were sighted in a line abreast, the BARBAROSSA (flagship) on the starboard wing with, at intervals of two cables, the TORGUT REIS, MESSUDIEH, and ASSAR-I-TEWFIK¹ on the extreme port wing. The four ships steamed towards the Greek while the MEDJIDIEH and eight Turkish destroyers remained under shelter of the forts.

As the Turks steamed towards him, Condouriotis² by wireless called up the submarine *Delphin* and the smaller destroyers from Tenedos, but they did not arrive in time to take any part in the action. At the outset he formed his four armoured ships in line ahead, placing the four big destroyers in a second line ahead on the port side of his larger ships. When clear of the land the Turks turned 8 points to starboard simultaneously, thus also forming line ahead. At 9.30 Condouriotis in the *Averoff*, which was superior in speed to any of the other ships, signalled to his other vessels to manœuvre independently and himself went as fast ahead as he could to cut off the Turks. The other three Greek armoured ships formed in line abreast and slowed down to draw the Turks out. At 9.50 at a range of 15,000 yards the Turkish vessels opened fire; the Greeks did not reply till 10 a.m. when the range had dropped to 8,000 yards.

The Turks turned five minutes after the Greeks had opened, and at 10.30 the skirmish was over. The MESSUDIEH was attacked by the destroyer *Ierax*, which fired sixty-five 4-inch shells at her and claimed several hits; and it was noticed that she dropped out of station. Otherwise the Turkish squadron was not much the worse; it reported 58³ casualties. The Turks fired 700 to 800 shots. The *Averoff* made a bold attempt to use her torpedoes and closed to about 3,000 yards when she was hit by one heavy shell on the water-line and by fifteen small projectiles on her upper works. Her casualties were 1 killed and 7 wounded. The *Spetsai* and *Hydra* were hit between them five times without any important damage and with only one man slightly wounded; the *Psara* was not touched. Each side claimed the victory, but that the Turks retreated is undeniable.

¹ Launched 1868, reconstructed 1906, 3 to 8-inch iron armour, 12 knots, three 6-inch and seven 4.7-inch guns.

² Condouriotis' report states the date as December 17, which must be a slip.

³ One 7.5-inch shell entered the unarmoured side of the BARBAROSSA and killed 5 men; one heavy barbette was put out of action, and a serious fire broke out in her. Her loss was 5 killed and 21 wounded. *Ereignisse zur See*, p. 82.

On December 22, a few days after this exhibition of liveliness, the *TORGUT REIS*, *MEDJIDIEH* and three destroyers came out, but hurriedly returned when they found the Greeks on the alert. A more important sortie was made on January 18. The fast Turkish cruiser *HAMIDIEH* had escaped from the Dardanelles unobserved by the Greeks on January 14, after her repairs had been completed, and the Turkish commander, Captain Ramsi Bey, believed that the *Averoff* had left in pursuit of her. In the morning of the 18th the four Turkish armoured ships came out and boldly steamed past Tenedos and Imbros towards Lemnos, followed by thirteen torpedo craft and the *MEDJIDIEH*. When the Turkish squadron was about twelve miles from Lemnos the *Averoff* appeared, followed by the rest of the Greek fleet. At the sight of the *Averoff* the Turks turned and steamed back to the Dardanelles. As in the previous skirmish, Condouriotis manœuvred independently and attempted to cut off the hostile squadron. A scrambling long-range action began at 11.25 and continued for two hours. The *Averoff* in the later stage of the encounter closed to about 5,000 yards and claimed a large number of hits with her powerful guns.

Both the *BARBAROSSA* and *TORGUT REIS* were seen to be on fire, but subsequent experience at Dogger Bank and Jutland showed that this might happen without any very serious effect on a battleship's fighting capacity. The *BARBAROSSA* had her centre barbette put out of action, and the *TORGUT REIS* also had one barbette disabled. The Turks fired 800 projectiles, many of them from their twelve 11-inch guns, but the Greeks reported only one man slightly wounded, and though the *Averoff* was hit in her upper works she was not at all seriously damaged. The *ASSAR-I-Tewfik* was a good deal knocked about and showed a distinct list; and the *TORGUT REIS* had one of her heavy gun turrets put out of action. The Turkish loss was believed to be 31 killed and 82 wounded.¹ Each side as usual claimed the victory which, however, incontestably rested with the Greeks.

As for the *HAMIDIEH*, she eluded the Greek destroyers off the Dardanelles and steamed straight to the little island of Syra where the Greeks had large stores of explosives in a number of separate magazines. These magazines she shelled without result, firing a little more than a dozen rounds; she then opened on the Greek auxiliary cruiser *Macedonia* which

Ereignisse zur See, pp. 102, 105.

was lying in the harbour, and hit her fifteen times; a shell that missed the *Macedonia* exploded in the electric light station putting it temporarily out of action. The shells set the *Macedonia* badly on fire and an attempt to scuttle her failed owing to the insufficient depth of water. She was burnt out completely and badly damaged. The Greek Government feared a raid by the HAMIDIEH upon the Piraeus and placed guns in position there, but the Turkish cruiser, finding her coal running short, proceeded to Port Said, where she arrived on January 19 and claimed the right to coal and remain as long as she liked as that harbour was nominally Turkish.

The British authorities, however, decided that she must comply with the twenty-four hours' rule and she thereupon decided to go through the Suez Canal and enter the Red Sea, where she remained till February 9 without accomplishing anything of importance. From Port Said she steamed to Beirut, and then doubled back to Malta, where she put in under stress of weather on February 15. The *Psara* with four destroyers was sent in pursuit, these being the only vessels the Greeks could spare, but the *Psara* was much too slow to have any chance of catching the Turkish cruiser. On March 11 the HAMIDIEH was in the Adriatic, off Durazzo, and shelled a Serbian encampment there, and next day she was off San Giovanni di Medua, where she fired upon a number of Greek transports that were embarking Serbian troops for Scutari.

The Serbians drove her off with the fire of one or two of their heavy guns which they disembarked for that purpose. Her next act was to steam to Alexandria, coal there, and thence proceed to Beirut, and on April 9 for the second time she entered the Red Sea, where once more she remained inert. Not until after the close of the war, on August 24, did she return to the Mediterranean. Beyond annoying the Greek Government and alarming the more nervous among the Greek people her cruise was quite ineffective and had no influence on the operations.

In February, 1913, for the first time a seaplane was used in naval war. The Greek airman, Mutusis, started from Mudros Bay and examined the entrance to the Dardanelles and the Turkish squadron with an observer. He dropped four bombs over the ships—the first use of aircraft bombs in naval war—but failed to obtain a hit. He examined the Gallipoli Peninsula with a view to forcing the straits and

reported it to look like one great military arsenal. In all he was up two and a half hours and covered 112 miles. He came down at sea and was picked up by a destroyer. About this date the old Turkish armoured ship ASSAR-I-TEWFIK was wrecked and lost in the Black Sea.

The last important event of the naval war was the seizure by the Greeks of Samos on March 14, 1913. All the islands of the Ægean had now been lost by Turkey, and as she had no prospect of recovering her position at sea, there was nothing left her but to make peace. The armistice with Bulgaria and Serbia had ended on February 1, 1913, and those two states had renewed their operations against Turkey. On April 20 a second armistice was signed between the Balkan States and Turkey, Greece being one of the signatories, but soon after a definite peace had been concluded on May 30, war once more broke out, on June 30, between Bulgaria on the one hand and Greece and Serbia on the other. In this second war there were no naval operations of any importance because Bulgaria had no warships in the Ægean and the action of the Greek Navy was limited to the moving of troops and the covering of operations on the coast.

The war led to action by the Powers against Montenegro who refused to cease her operations against Scutari, which both Italy and Austria wished to form part of Albania. On April 5, 1913, a squadron of nine warships, British, French, German, Italian, Austrian, under the British Vice-Admiral Cecil Burney reached the Montenegrin coast which was formally blockaded on April 10. On May 14 Scutari was handed over by the Montenegrin Government to an international force, landed from the warships, and the blockade came to an end.

In the operations against Turkey the Greek Navy depended for success upon a single ship, the *Averoff*, and a successful mine or torpedo attack might have given the Turks the superiority at sea. Fortunately for the Greeks their adversaries were not enterprising. In the two skirmishes which took place between the armoured vessels on either side the *Averoff's* armour proved quite adequate. But she would have been a better ship if for her eight 7.5-inch guns four more 9.2-inch weapons had been substituted, so mounted as all to fire on the broadside. The Greeks felt the need of effective battleships so severely that immediately after the war they purchased two from the United States and ordered a battle cruiser in Germany.

CHAPTER XVI

Battleships Disasters—The “Captain” Capsizes in a Gale—The “Vanguard” Rammed by the “Iron Duke”—“Grosser Kurfürst” Rammed by the “König Wilhelm”—The Loss of the “Victoria”—Tryon’s Enigmatic Order—The Order Executed—“Victoria” Rammed—Loss of Tryon and 337 Men—Battleship Explosions—The “Mikasa” Destroyed—“Aquadaban” Sunk—The “Iéna” and the “Liberté”—Dangerous “powder B”—Explosions in the Great War—Their Cause still Obscure.

THE first disaster to a battleship in peace did not occur till 1870. Strangely enough this had been all but foretold at the Admiralty,¹ and was the fault, not of Whitehall, but of public opinion, which had persistently urged the construction of a certain demonstrably unsound type of vessel.

The ill-fated *Captain* was an iron armoured turret ship, of 6,900 tons, designed by Captain Cowper Coles, the English inventor of the turret, many of whose ideas are now incorporated in every battleship design. He had set his heart upon a sea-going, masted turret ship, with low free-board, and, much against the will of the technical advisers of the First Lord,² he was at last permitted to build such a ship. It should be remembered that for twenty years or more, after the introduction of armour, masts and sails were considered indispensable for seagoing warships, and an armoured vessel which could not carry them was regarded as fit only for coast defence. Messrs. Laird, of Birkenhead, were the contractors. When completed in 1870, she was considered by all except a few experts, who had misgivings, the finest fighting ship in the fleet, and was to be the type of future battleships.

Her length was 320 feet, her beam 53 feet, and her draught 25 feet 9½ inches. As designed by Captain Coles she was to have had a freeboard of a little more than 8 feet 6 inches. An

¹ Parliamentary Papers, 1871, xlii, p. 677, “utterly unsafe”; p. 678, “cannot possibly prove a satisfactory sea-going ship”; p. 892, “the danger to be apprehended from these [fully rigged] monitors is very great.”

² Parliamentary Papers, 1871, xlii, pp. 668, 673.

error of her designer had reduced this to 6 feet 8 inches, so that, if unsafe in embryo, she was still more unsafe in her completed state. Indeed, her constructors seem to have been by no means easy about her, as, when they handed her over, they requested the Admiralty authorities to test her stability by inclining her. This was done with fairly satisfactory results. The ship carried four 25-ton guns in two turrets, placed fore and aft in the keel-line. She had a high fore-castle and poop, which were connected by a hurricane deck running above the turrets. The armour on the turrets was 13 to 8 inches thick, and on the water-line 6 to 8 inches. There were three tripod masts, with full sail-power, a sail-power which was greater than that given to her safer competitor, the *Monarch*, in proportion to her size. There was one funnel.

She was commanded by a most able and promising officer, Captain H. T. Burgoyne. Everyone except a few experts had faith in her, and she was in due course sent to sea with the Channel squadron. In May she faced a heavy gale in the Bay of Biscay. On this cruise her fighting capacities were well tested. In a heavy sea she fired her great guns without any difficulty, making good practice. Under sail she stayed and wore beautifully, beating the *Monarch* with great ease. Admiral Symonds, after noting her behaviour and inspecting her, reported: "She is a most formidable vessel, and could, I believe, by her superior armament, destroy all the broadside ships of the squadron in detail." A second successful cruise across the Bay of Biscay confirmed this good opinion of her, and even her detractors were forced to confess themselves mistaken.

A third time she went to sea with the Channel Squadron under Admiral Milne; and Captain Coles, her designer, sailed in her, to observe her behaviour. The vessels cruising with her were the *Lord Warden*, the flagship, the *Minotaur*, *Agincourt*, *Northumberland*, *Monarch*, *Hercules*, *Bellerophon*, and the unarmoured ships *Inconstant* and *Bristol*. To test the turret-ship thoroughly they crossed the Bay of Biscay, and on September 6, 1871, were near Cape Finisterre. That day a heavy sea was running, and, on Admiral Milne visiting her, he pointed out to Captain Coles that the lee side of the deck was under water when she rolled, and said that it looked ugly. Captain Coles assured him that it made no difference, and mattered nothing. But Coles and Burgoyne were anxious that the admiral should spend the night on board,

though, fortunately for him, he declined. The *Captain* was under sail, but with steam up, ready to be used if required. She was rolling heavily, the angles averaging twelve-and-a-half degrees and sometimes reaching fourteen degrees.

At 8 p.m. that evening the sea was high, and it was cloudy to the west, but there was as yet no indication of a gale. The ships were in station, the *Captain* astern of the *Lord Warden*. At 11 o'clock there was a fresh breeze and some rain. At midnight the barometer dropped, the wind rose, and, as it became evident that dirty weather was at hand, sails were reefed. A little before 1 a.m. a furious gale set in from the south-west and sails were furled. The rest may be told in Admiral Milne's words: "At this moment the *Captain* was astern of this ship, apparently closing under steam. The signal, 'Open order,' was made, and at once answered; and at 1.15 a.m. she was on the *Lord Warden's* lee quarter, about six points abaft the ship: her topsails were either close reefed or on the lap; her foresail was close up, the mainsail having been furled at 5.30 p.m.; but I could not see any fore-and-aft set. She was heeling over a good deal to starboard, with the wind on her port side. Her red bow light was at this time clearly seen. Some minutes after I again looked for her, but it was thick with rain, and the light was no longer visible. The squalls of wind and rain were very heavy, and the *Lord Warden* was kept by the aid of the screw and after-trysails with her bow to a heavy cross-sea, and at times it was thought that the sea would have broken over her gangways. At 2.15 a.m. (of the 7th) the gale had somewhat subsided, and the wind went round to the north-west, but without any squall; in fact, the wind moderated, the heavy bank of cloud had passed off to the eastward, and the stars came out clear and bright; the moon, which had given considerable light, was setting: no large ship was seen near us where the *Captain* had been last observed, although the lights of some were visible at a distance. When the day broke the squadron was somewhat scattered, and only ten ships, instead of eleven, could be discerned, the *Captain* being the missing one."

The ship was gone, and how no man knew as yet. The vessels of the squadron scattered and searched in every direction, but it was not till the afternoon that the foreboding became certainty. Some portions of her hurricane deck, a spar with a handkerchief tied to it, the body of a seaman, were discovered. The *Captain* had foundered

in one of the heavy squalls soon after one o'clock, when a heavy cross-sea was running.

The eighteen survivors, who struggled ashore to the coast of Finisterre, could alone tell the story. About midnight the wind was very strong, and the ship was then under her three topsails, in each of which double reefs had been taken. Steam was up, but, apparently, the screw was not working, and she was making little way, rolling very heavily. The starboard watch had been called a few minutes after midnight, and had just mustered on deck. As they were called there was a very heavy lurch, but the ship righted herself again. When the men came on deck¹ they heard Captain Burgoyne give the orders, "Let go topsail halyards," and then, "Let go fore and main topsail sheets." Before they got to the sheets a second and more terrible lurch began. In quick succession the angle of the heel was called, in answer to a question of Captain Burgoyne, "Eighteen degrees! Twenty-three degrees! Twenty-eight degrees!" At the sheets the heel to starboard was so great that some of the men were washed off the deck. The ship was now on her beam-ends, lying down on her side, slowly capsizing, and "trembling with every blow which the short, jumping seas, white with foam, struck her." It was a dreadful moment. The steam, escaping with a tremendous roar from the funnel, did not drown the cries of the stokers, which came up from the bowels of the ship. The boilers were fired athwartship, and when the *Captain* was on her beam-ends the furnace doors in the port row of boilers would no longer be able to resist the pressure of the glowing coal inside, but would be forced open, and thus would discharge their contents upon the hapless men, flung in a heap upon the fronts of the starboard boilers. And, as the draught failed, and the water descended by the funnel to the furnaces, would come a rush of flame and steam.

The last seen of the *Captain* was the stem. The few survivors, all, except the captain and the gunner, of the starboard watch, climbed on to the launch and the pinnace, which were floating about. The second launch was cleared, and the men set to work to row her to the help of the pinnace, upon which, as it swam bottom upwards, were Captain Burgoyne and several men. Many of the men jumped to the launch, but Burgoyne would not, and as the heavy sea prevented close

¹ Court Martial, H.M.S. *Captain*, p. 124. This fixes the time and shows that Admiral Milne must have been mistaken when he thought he saw the *Captain* at 1.15.

approach, and all but swamped the launch, he had to be abandoned. He refused an oar, telling the men they would want all those they had. Eighteen survivors reached dry land, after in vain hailing the *Inconstant*, which passed close to them, without hearing or seeing them in the uproar and darkness of the squall.

At the court martial which sat to try the survivors the verdict was a vindication of the Admiralty. "The *Captain*," it ran, "was built in deference to public opinion, and in opposition to the views and opinions of the Controller of the Navy and his department." Her heavy masting, her sails, her low freeboard, far lower than her designer had intended, and her great top-weights, in the shape of her hurricane deck and turrets, were the causes of the disaster. She might have been a safe ship without her masts, or with them she might have been a satisfactory coast-service vessel. But there is no doubt that she was too unstable for work at sea. Her loss was not without effect. It warned off amateur designers. The art of designing a ship is so difficult, and needs such an extensive technical knowledge, if the product is to be satisfactory, that in this there is only cause for satisfaction.

A second disaster was happily unattended with loss of life. The Channel Squadron, consisting of the five ironclads, *Warrior*, *Achilles*, *Hector*, *Iron Duke*, and *Vanguard*, left Kingstown for Queenstown on September 1, 1875, at 10.30 a.m. On reaching the Kish lightship the *Achilles* left the squadron to steer for Liverpool, whilst the other four proceeded on their course, formed in line ahead. At about 12.30 a very thick fog came on, and it was not possible to see more than fifty yards ahead. The positions of the ships were now as follows: First came the *Warrior* and *Hector*; then, a mile or two astern of them, the *Vanguard* and *Iron Duke*, the former ship leading. The speed which had been ten or twelve knots before the fog came down, was reduced to seven or eight.

Soon after half-past twelve a large sailing vessel crossed the *Vanguard's* bows, and compelled her to sheer from her place in the line. Her helm had been put hard-a-port, and her way thus checked, when suddenly the *Iron Duke*, which had first sheered, for no adequate reason, and then had come back to her course, loomed up through the fog, not one cable distant, with her ram pointed at the *Vanguard's* broadside. Simultaneously the *Vanguard* was seen by the *Iron*

Duke, and Captain Hickley, the commander of the latter, who was on deck, at once ordered his engines to go astern, but too late to avert a collision. Steaming at a rate of something less than 7 knots, the *Iron Duke* struck the *Vanguard*, which was steaming about 6 knots, 4 feet below her armour, just abaft the mainmast on the port quarter, abreast of the engine-room. A very large rent, 25 feet square, was made in her, and the water came through in a torrent. Unfortunately, the ram had damaged the ship at her most vulnerable point, tearing a hole in the athwartship bulkhead, which parted the engine and boiler compartments—the two largest compartments in the ship. The shock was very violent. The armour-belt of the *Vanguard*, here 8 inches thick, was driven in more than a foot, but the inner skin was not actually pierced by the ram. Other bulkheads in the ship were so much damaged that they leaked badly, and on deck spars and blocks fell from her masts. Immediately the collision occurred the water-tight doors were closed. There was no panic, and the discipline maintained was excellent. The engine-room, stokehold, and alleys were quickly filled, the boiler drowned out, and the steam-pumps left without steam. One hour after the collision, at 2.15 p.m., the *Vanguard*, which was heavily down by the stern, whirled round two or three times and went to the bottom in nineteen fathoms. Her crew had previously been transferred to the *Iron Duke*.

The *Vanguard* was a second-class battleship of 5,899 tons and 3,500 horse-power. She was one of a class of six ships primarily meant for service on distant stations. She carried ten 12½-ton muzzle-loaders and two 64-pounders. She had a complete armour-belt, 6 to 8 inches thick, on the water-line, and a central battery protected by 6-inch plating. She had a speed of 14.9 knots at her trial, and carried a crew of 450 men. On her steam trials she was found to be defective in stability, and her double-bottom had been filled with bricks and cement. There were seven athwartship bulkheads dividing the hold into eight compartments, and it was calculated that any one of these might be breached without disaster to the ship. The possibility of a blow being struck over one of the bulkheads, and thus laying open two compartments to the sea, had been overlooked.

The court, which tried the officers of the *Vanguard*, came to the conclusion that the disaster was due, firstly to the high speed which the squadron was maintaining in spite of the fog; secondly to the fact that Captain R. Dawkins, of the

Vanguard, though leader of his division, and though the weather was foggy, had left the deck; thirdly to a reduction of speed by the *Vanguard* without any signal to the *Iron Duke* astern; fourthly to an increase of speed by the *Iron Duke* in spite of the fog, and in spite of the fact that the speed was already high; fifthly to the *Iron Duke's* improperly sheering out of line; and sixthly to the absence of any fog-signals on her part. Captain Dawkins was censured and dismissed his ship for neglecting to get the pumps to work, and instead hoisting out the boats. The court held that he should have tried to cover the rent in the side with sails. The navigating lieutenant was censured for not endeavouring to run the ship into shoal water, when she might have been recovered, even if she had sunk. It was held that the *Iron Duke* should have made some effort to tow her into shallow water. The commander of the *Vanguard* was reprimanded with the chief-engineer and carpenter. The *Iron Duke's* watch-officer was dismissed his ship.

Three years later a similar disaster occurred to the German fleet, but this time there was grievous loss of life. On May 6, 1878, a squadron of three armoured ships—the *König Wilhelm*, carrying the flag of Admiral von Batsch, the *Grosser Kurfürst*, and the *Preussen*—went into commission at Wilhelmshaven. After completing their crews and fitting out, on May 29 they left the port on their way to Plymouth. On May 31 they were in the Channel off Folkestone. The formation adopted was a triangular one, the *König Wilhelm* leading, and the *Preussen* following astern, in line with her. To starboard of the flagship, slightly abaft her beam, was the *Grosser Kurfürst*. Her distance from the *König Wilhelm* had originally been 440 yards, but an hour before the collision, she had been ordered to draw closer, till only 110 yards parted the two vessels, and from the shore it was noticed that they were in dangerous proximity. Whilst steaming thus, two sailing vessels, hauled to the wind on the port tack, crossed the bows of the squadron. In obedience to the rule of the road, the *Kurfürst* ported her helm, and turned to starboard to clear them. Having done this, she turned sharply to port to recover her original direction.

The *König Wilhelm* at first tried to pass ahead of the sailing vessels, but finding this impossible, turned to starboard, and found the *Grosser Kurfürst* lying across her bows, at right angles to her course. To avoid the collision now imminent, the *Grosser Kurfürst's* captain went full steam ahead, and

tried to cross the bows of the oncoming ship in time to clear her. Seeing that this was impossible, he essayed to turn to starboard, hoping to come round on a course parallel to the *König Wilhelm*, or at least to receive only a glancing blow. On board the *König Wilhelm*, both admiral and captain were below, and in these few critical instants there was not time to summon them on deck, or for them to do anything if they had been summoned. The helm was in charge of a petty officer, a one-year volunteer of no experience, and six raw recruits. When the watch-officer gave orders for the helm to be starboarded, to bring the ship round to port, the men got confused, and instead of obeying the order, did the exact opposite, and ported the helm, thus swinging the ram more round to starboard, whilst the *Kurfürst's* stern swung round to port to meet it. As the collision was now inevitable, the order on board the *König Wilhelm* was given to reverse the engines, and they were actually going astern at the moment of impact.

With a speed which, in spite of the reversal of the engines, reached six or seven knots, the *König Wilhelm* crashed into the *Grosser Kurfürst*, which was steaming at nine or ten knots, between the main and mizzenmasts. The ram ploughed up the armour as if it had been orange-peel, whilst a sound of crunching and rending filled the air. The angle of impact was more than forty-five degrees and less than ninety. On board the *König Wilhelm* there was no shock, but a gentle trembling. Glasses of water on her tables were not upset, nor was the water spilled. In the *Grosser Kurfürst* there was a violent shock. The ship lurched to starboard, away from the *König Wilhelm*, but kept her way, and twisting and breaking the ram cleared it, and grated alongside. The bowsprit of the *König Wilhelm* caught the *Grosser Kurfürst's* rigging and brought down her mizzen top-gallantmast, before it was broken off. The boats on the rammed ship's quarterdeck were shattered or swept away.

The water poured through the great breach in the side and down the stokehold, flooding the furnaces, and driving the stokers up the hatchways and steps inside the ventilators, whilst the steam escaped violently. A heavy list to port laid the doomed vessel on her beam end, and prevented the crew from getting out the boats, which were smashed on the port side, and lying on the side to starboard. There was little time to do anything, but an effort was made by the captain, Count von Montz, to run her into shallow water. Before she

had moved any distance, five minutes from the time of the collision, she sank in fifteen fathoms of water, sucking down many of the crew. Her hammocks had been stowed away in an unusual position—between the boom-boats—so that they could not float away and act as buoys. Of a crew, which numbered 497, 216 were picked up, of whom three afterwards died from exhaustion. Twenty-three officers were saved, and 6 drowned, amongst whom were an engineer and a paymaster.

The ram of the *König Wilhelm* was greatly damaged. The stem was broken in two places, and twisted over to port at an angle of forty-five degrees. All the rivets near it were sheared, or broken away. The sea rushed into her fore compartment and filled it, heavily depressing the bows. There was great excitement on board, as it was at first thought that she too was going to founder, and her captain prepared to beach her, but, finding that the pumps could keep the water down, abandoned the idea, and returned to succour the *Grosser Kurfürst*. The *Grosser Kurfürst* was a turret-ship of 6,600 tons, resembling the English *Monarch*. In her two turrets she carried four 9.4-inch Krupps, and on her upper deck two 6.7-inch guns. Her armour was from 7 to 10 inches thick.

In 1893 another disaster befell the British Navy in the loss of the *Victoria*. She was a single-turret battleship of the first class, and the most recent construction. Completed in 1890 at a cost of £724,800, exclusive of guns and gun-mountings, she had a speed of 16.7 knots on the measured mile, and an armament, included in which were two 110-ton guns, one 29-ton gun, and twelve 6-inch guns. She carried a belt of armour from 16 to 18 inches thick, extending for about half her length on the water-line; and forward was her single turret, with its two huge guns. The total strength of the crew including officers was 659. In her, Vice-Admiral Sir George Tryon, the commander-in-chief of the Mediterranean Fleet, had hoisted his flag.

At 10 a.m., on the morning of June 22, 1893, the fleet left Beirut for Tripoli. The vessels present were the battleships *Victoria*, *Camperdown*, carrying the flag of Rear-Admiral A. H. Markham, the second in command, *Collingwood*, *Sans-pareil*, *Nile*, *Edinburgh*, *Inflexible*, and *Dreadnought*, with the cruisers *Edgar*, *Amphion*, *Phaeton*, *Barham*, and *Fearless*. The order was line abreast, and the speed eight knots. Five miles off the intended destination, at 2.20 p.m., the order was changed to columns of divisions line ahead, disposed abeam

to port, the two columns being six cables apart. This brought the fleet into two parallel columns, the starboard one headed by the *Victoria*, containing six ships, and the port column headed by the *Camperdown*, containing five. The *Barham* and *Fearless* were not formed up with the heavier ships. A few minutes earlier, Admiral Tryon had sent for the *Victoria*'s commander, Captain the Hon. M. A. Bourke, and her navigating officer. To them he explained the manœuvre by which he proposed that the fleet should take up its position preparatory to anchoring. The two columns, only six cables apart, were to turn inwards sixteen points towards each other. This half-turn would exactly reverse their direction and leave the ships still in a double column, but extremely close together.

The danger of the proposed manœuvre was at once realised by both Captain Bourke and Staff-Commander T. H. Smith.¹ The space between the two columns was wholly insufficient, for in manœuvring with other ships the tactical diameter² of the least handy ship must govern the movements of the handiest. With twenty-eight degrees of helm, which was for manœuvring purposes the limit of the *Victoria*, and without "jockeying" with the screws, driving one ahead and the other astern, a practice which Admiral Tryon discountenanced, the diameter of the *Victoria*'s circle was 800 yards, or four cables. The *Camperdown* with about the same turning circle was therefore demonstrably bound, if both ships started turning inwards at once with a distance of only six cables between them, to ram or to be rammed by the *Victoria*. They must collide unless quite exceptional measures were taken. The staff-commander suggested eight cables as a better distance, and the admiral accepted the suggestion, remarking, "Yes, it should be eight cables." The surprise of the commander was therefore great, when at 2.20 the admiral sent orders to signal the distance between the columns as six cables, and as he apprehended that there must be some mistake, the admiral's flag-lieutenant, Lord Gillford, who had carried the order forward, went below, and asked once more whether the distance was to be only six cables. Once more he was told by Admiral Tryon to "leave it at six cables." Captain Bourke, who was with the admiral, reminded him that the turning circle of the *Victoria* was 800 yards in diameter, but to no purpose.

An interval of an hour passed, during which a remonstrance

¹ Staff-Commander was a high rank of navigating officer now abolished.

² Tactical diameter is the diameter of the circle which a ship describes in making a complete turn. A cable is 200 yards.

might have averted the disaster which was impending. At 3.28 the fatal signal was made in the following terms:

"Second division alter course in succession sixteen points to star-board, preserving the order of the fleet.

"First division alter course in succession sixteen points to port, preserving the order of the fleet."

The signal was received on board the *Camperdown* and other ships. Admiral Markham was at once seized with the same misgivings as Captain Bourke. "It is impossible as it is an impracticable manœuvre," was his remark to his flag-lieutenant, and he ordered the lieutenant to semaphore to the *Victoria* an inquiry as to what was intended, meantime keeping the signal at the dip, to show that it was not understood. On this the *Victoria* signalled to him to know why he was waiting. Unhappily no answer to the semaphore inquiry was ever made, and Markham came to the conclusion that the commander-in-chief must intend the second division to turn first, whilst he with the first division circled round outside it. There was hardly one of the captains of the other ships who did not think the manœuvre fraught with the utmost danger, yet all complied with the signal. What is singular is that orders were not at once given in every ship to close watertight doors and go to collision stations. There was a distinct want of initiative shown here.

The signal passed down the two lines, and the fatal turn began. The *Victoria* and the *Camperdown* at the head of the two columns led the way. On board the *Victoria* the helm used was thirty-five degrees, the extreme limit possible, and when the ship had swung but a very little distance to port, it became evident that a collision was at hand. Captain Bourke, the staff-commander, and Midshipman Lanyon were close to the admiral on the *Victoria's* flying-bridge above the chart-house. The first remark of the captain was: "We shall be very close to that ship (the *Camperdown*)," and, turning to Lanyon, he ordered him to take the distance. This occupied some seconds, during which the two great ships were swinging rapidly towards each other. Meanwhile, Captain Bourke asked the admiral to permit him to go astern with his port screw, and so help the turn. Three times he asked in quick succession before the admiral, after a glance at the *Nile*, the next astern, consented. A very short time afterwards both screws were put astern full speed, but it was now too late.

No power could avert the collision, and the two ships drew closer and closer. A minute before the actual crash came, the orders "close water-tight doors" and "out collision-mat" were given. At the former order the crew would go at once to their collision-stations and fasten every door and hatchway, thus isolating every compartment and flat. The order for collision-stations was given by a "G" on the bugle and by the ship's foghorn.

Four minutes at the most after the signal, the *Camperdown* struck the *Victoria* very nearly at right angles, just before the armoured breastwork which encompassed the base of the turret. The ram ploughed its way in about nine feet, shattering a coal bunker and breaking a man's leg. A petty officer, standing in his mess, looked up and saw the nose of the huge ship come right in amidst a cloud of coal dust. The water could be heard pouring into the ship below. The deck and ironwork buckled up before the ram, and there was a dreadful crunching sound.¹ The shock was tremendous, if indeed it could be called a shock, for the *Victoria* was forced bodily, sideways, a distance of seventy feet. No one was thrown down, but the wrench was violently felt throughout the ship. For an appreciable time the two vessels remained in contact, and the way on them gradually swung their sterns together whilst the *Camperdown's* ram, still in the breach, worked round and perhaps enlarged the hole. Then as Admiral Tryon hailed the *Camperdown* and ordered her to go astern, that ship cleared the *Victoria*. The *Camperdown's* engines had for some seconds been moving astern, and since her speed, which was only five knots at the moment of the collision, had been further checked by the collision, it would not be long before they began to drive her backwards. The water at once began to pour into the *Victoria* by the breach, which measured about 125 square feet.

On board the *Camperdown* the turn had been executed with twenty-eight degrees helm, instead of thirty-five degrees, the extreme angle possible. Though both Admiral Markham and Captain C. Johnstone had expressed, as we have seen, their opinion that the manœuvre was a dangerous one, the fullest helm was not used, nor were the screws "jockeyed" to diminish the turning circle. Both watched the *Victoria* attentively till, when it was seen that she was end-on to the *Camperdown*, approaching her and not circling outside her as had

¹ The blow was struck just over a water-tight bulkhead, which was probably destroyed.

been expected, the orders were at last given to close water-tight doors and go astern with the starboard screw.

An instant later both screws were ordered to go astern at full speed, but, through some defect of the engine-room telegraph, the order when it reached the engine-room was only for three-quarter speed astern. This could not have made much difference, as the time was too short for the reversal of the engines to have much effect upon the speed. At 3.34 the *Camperdown* delivered the blow, and about two minutes afterwards cleared the *Victoria*, when the flagship steamed ahead. The collision-mat was placed over the *Camperdown's* bows, while she too filled forward, and was heavily down by the bows. The crew had been prevented by the inrush of water from closing all the water-tight doors forward.

Meantime on board the *Victoria* the men closing the doors forward were driven up by the water and gathered on the upper deck, above the auxiliary battery. The party with the collision-mat could do nothing; the water rose steadily forward, and when the mat was taken to the forecastle the upper deck was so far below the surface that the men at the foremost stations were wet to the waist. As the bow was depressed the stern rose out of water, and the port screw could be seen from the other ships racing in the air. The effort had to be abandoned, and, as the men of the forecastle party reached the upper deck, the water was up to the turret-ports and was beginning to wash in at the door in the screen, at the forward end of the auxiliary battery.¹ There was a steadily growing heel to starboard, the side on which were the injuries.

The engines, which had been stopped at the moment of the collision, were going ahead, in the vain endeavour to run the ship into shoal water, and this, in no small degree, tended to force the water into the breach, and also to depress the ship's bows by the leverage of the water acting upon the incline plane of the deck. The steering engine would not work, as the hydraulic machinery had been disabled, and the same was the case with the hydraulic boat-hoists, when they were tried.

Admiral Tryon, the staff-commander, and Midshipman Lanyon were on the top of the chart-house; whilst Captain Bourke had gone below, at the time of the collision, to see that the water-tight doors were closed. The first recorded remark of the admiral was "It is all my fault." He then asked whether the ship would float, and the commander assured him that in his opinion it would. No one appears to

¹ This is the condition represented in the diagram.

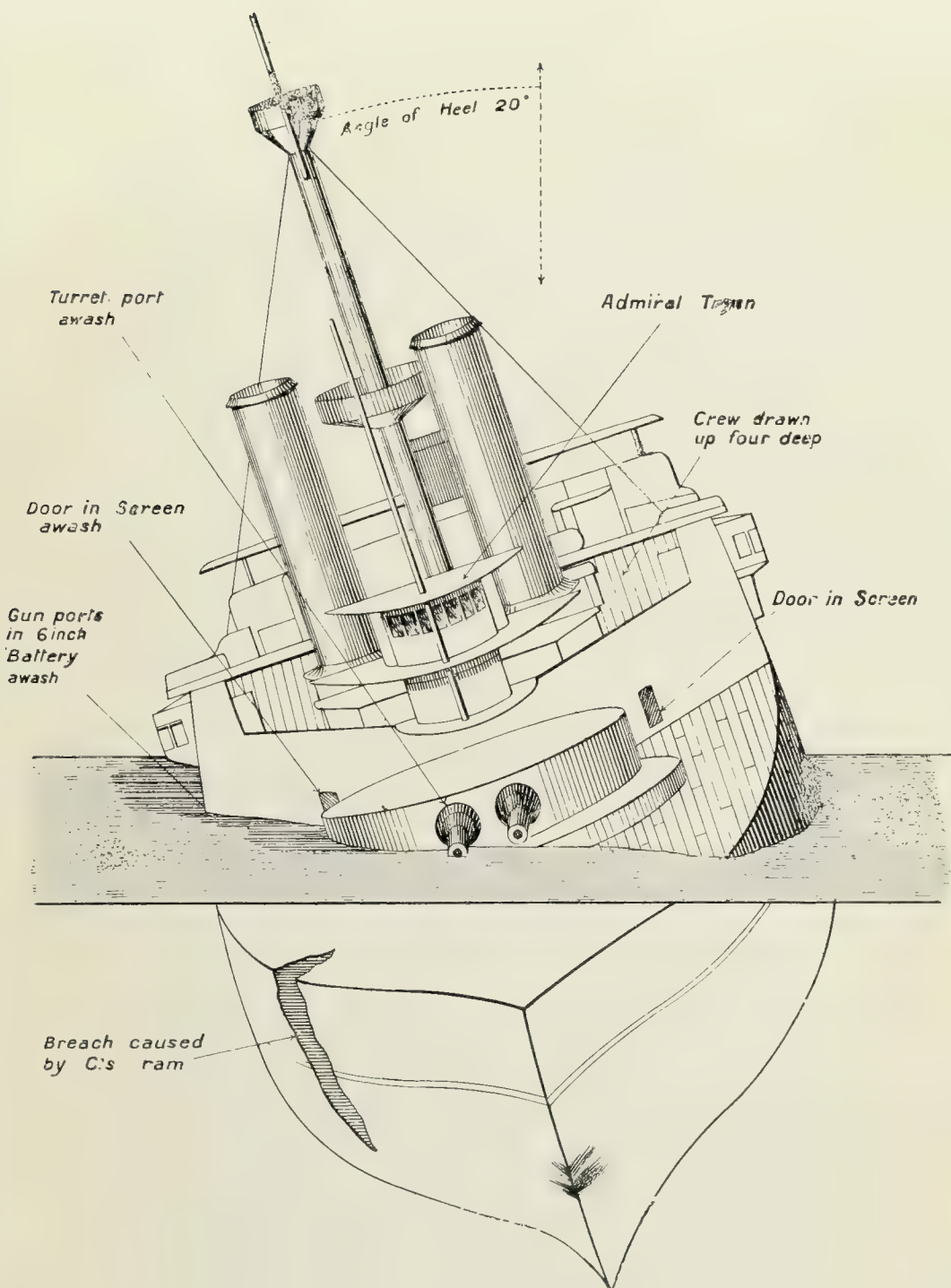


PLATE 21

[p. 294

THE "VICTORIA" SINKING AFTER BEING RAMMED BY THE "CAMPERDOWN"

The water poured in through the turret ports and through the gun ports on the starboard side amidships.

have expected the sudden disaster which followed. The *Dreadnought* having prepared to send boats, a signal was made directing that they should not be despatched, but kept ready. Below, as Captain Bourke passed through the passages and flats of the battleship, where the electric light was now burning faint and dim, the men were coming on deck without haste or hurry. Looking down into the starboard engine-room, he spoke to the engineer in charge, and heard that there was no water in the engine-room. He heard, also, the gongs of the telegraphs, and could see that the engine-room men were steady at their posts. Meeting, in the main passage, the fleet-engineer, he was told by him that the boiler-rooms were water-tight. The list to starboard was great when he reached the upper deck. There, on the port side, with their faces away from the ship's side, were drawn up, four deep in line, the whole of the *Victoria's* crew, except the doomed men below in the engine-room and stokehold. It was a memorable sight. Steadiness the most perfect, obedience the most unwavering, discipline the most admirable, held the company. Though it must have been evident to all that the ship's end was at hand, there was still no panic. Not a man moved to the side, not a sailor stirred. All in the presence of this overmastering catastrophe demeaned themselves like men.

The list of the great ship grew. The deck heeled towards the perpendicular, and the order "Jump," was given. The line of men broke and made for the side, but with difficulty, owing to the growing angle of the list. Some threw themselves over, others were thrown through the air by the ship. Those astern had to leap past the whirling screw, which is said to have killed or injured no few. There was no want of gallant deeds in the awful instants which succeeded. The final lurch came at 3.44½, just ten minutes after the collision. There was a tremendous roll to starboard, the stem of the *Victoria* dived, a crash of boats and top-hamper falling into the water filled the air, and then the flagship went to the bottom amidst a cloud of smoke and steam. The last seen of her was the stern, with the screws still revolving. The officers and crews of the other ships were horror-struck witnesses of the scene, and, as quickly as they could, sent their boats to the help of the drowning men. In from five to ten minutes they were near the place where the *Victoria* had foundered, and rescued between them 338 lives. Admiral Tryon was never seen again after the final lurch.

The *Camperdown* was very severely damaged in her bows. A great hole, 10 feet by 6 feet, was torn by the sharp edge of the *Victoria's* armour-deck, and the stem was broken above the ram and twisted to port. The water shipped brought up her draught forward from 27 feet 9 inches to 32 feet, an increase of over 4 feet. She could not, therefore, have repeated the blow, and must have been in great danger if a storm had arisen.

The court martial which met at Malta found that Sir George Tryon was to blame for the collision, acquitted Captain Bourke and the *Victoria's* officers, and praised the order and discipline maintained on board. It regretted that Admiral Markham had not signalled to the commander-in-chief his doubts as to the evolution. An Admiralty minute blamed Captain Johnstone for not making preparations in view of the collision which he expected. The same minute pointed out that the foundering of the *Victoria* was due, not to defective construction, or instability, but to the fact that many of the water-tight doors and scuttles forward had not been closed, and thus the water, instead of being confined to two compartments at the most, filled the forward part of the ship. This weight of water depressed the bow, and brought the ventilators on the upper deck, some of which could not be secured, below the water-line, and admitted the sea to the mess deck. Next the turret-ports, the door in the screen, and the forward portholes of the 6-inch battery, all of which were open, became awash. Flowing through them into the angle formed by the side, and the now sharply sloping deck, the water lodged there, and capsized the vessel, as all her stability was gone. Had all watertight doors been closed, had the ports and ventilators been secured, the *Victoria* would beyond a doubt have floated, though with a heavy list. The men at collision-stations had only one minute instead of three to do the work.¹

"The order and discipline maintained upon the *Victoria* . . . was in the highest degree honourable to all concerned, and will ever remain a noble example to the service," concludes the minute. It is a noble epitaph, and that order and discipline converted a great disaster into a greater triumph.

The loss of this ship was an example of the need for initiative in subordinates when dealing with a doubtful order.

¹ There were a great many doors in the forward bulkheads, and there were numerous openings in the decks fitted with water-tight hatches, all of which had to be closed. Some of the doors could only be secured by entering the flooded compartments, a manifest impossibility.



THE LAST OF THE "VICTORIA"

The propellers revolving: a sad sight, similar to what was seen at Jutland. The ship to the left is the *Nile*, and was next astern of the *Victoria* when the disaster took place.



THE EARLY BRITISH BATTLESHIP "VANGUARD"

Sunk in a collision by the *Iron Duke*, a vessel of similar type. This photograph gives a good idea of the appearance of early armoured ships, with masts and sail.

It seems certain (for no other explanation of his action¹ is possible) that Tryon was seized with some sudden aberration which was the more disastrous because of the immense confidence placed in him by all under his command. But "even Homer nods," and the greatest of leaders are after all only human and apt to make mistakes. Sir A. K. Wilson, who was in the fleet, thought that Tryon mixed up the radius with the diameter of the circle which would be required for the movement he proposed; and said truly, that a lesser man than Tryon would not have succeeded in getting an obviously dangerous order carried out.²

Tryon was a masterful and imperious character, but it was a great misfortune that neither his flag-captain nor his rear-admiral impressed more strongly upon him their own doubts and the risks attending the proposed manœuvre. If the order for closing water-tight doors and assuming collision stations had been given in the *Victoria* before the signal was hoisted, there might have been some unpleasantness for the flag-captain, but it would have been an additional reminder to the commander-in-chief that the fleet would be imperilled and it might conceivably have saved the flagship. There was no reason (except the tendency to wait for orders before acting) why in the *Camperdown* all watertight doors should not have been closed and precautionary measures have been taken, yet there, too, nothing was done till a collision was plainly inevitable.

The *Maine* was sunk by an explosion which, in the light of subsequent events, seems to have been caused by the spontaneous ignition of explosives in her magazines.³ Many years passed before a warship was so destroyed as to render it certain that her magazines had taken fire spontaneously and exploded. But in the case of the *Mikasa*, Togo's flagship during the war with Russia, all doubt was removed when the full facts were ascertained. She was lying at Sasebo in shallow water, immediately after peace with Russia had been signed, when on September 10, 1905, a great fire broke out in her stern. The outbreak was followed by a series of small explosions and by the detonation of her magazines in three much more violent explosions, which were spread over a period of about an hour. The other ships in harbour sent parties to her aid when the fire and explosions began; but

¹ Sir W. L. Clowes's suggestion in *The Royal Navy*, vii, pp. 423-4, is not accepted by officers present at the disaster, with whom I have discussed it.

² Bradford's *Life*, pp. 125-6.

³ See page 116 ff.

at the last explosion, which did great damage, the ship sank with only her upper works above water. A total of 256 officers and men were reported killed or missing, and the injured were 343, many of whom died.

Rumours were current that her loss was due to wilful incendiarism on the part of persons in the crew or in Sasebo dockyard who were discontented with the terms of peace. These tales were as false as they were absurd and were strenuously denied at the time by Admiral Yamamoto, the Minister of Marine. A committee under Admiral Mizu was appointed to investigate the cause and report. The ship sank in shallow water with her upper masts showing and was refloated in August, 1906, when the hull was thoroughly examined. The examination left no doubt that the decomposition of some part of her explosives was the true explanation of the fires which led to her loss.¹ Completely reconstructed, she served in the Great War. All the important facts connected with her loss were communicated confidentially to the British Navy, but were otherwise not disclosed. It is known, however, that a good deal of explosive had to be obtained hurriedly by the Japanese Navy in the war with Russia, and this subsequently caused much anxiety. Such explosive was unquestionably responsible for the loss of the old Japanese cruiser *Matsushima*, in which on April 30, 1908, a great explosion occurred. She was in service as a training ship and was cruising off the Pescadores with the *Itsukushima* and *Hashidate* when the disaster took place at 4.8 a.m. Of her crew 141 were rescued by the boats of the other ships but nearly 200 perished and among them were 58 Japanese Naval Cadets.

In 1906 a similar disaster occurred in the small Brazilian battleship *Aquidaban*, which had previously been sunk by torpedo in the Brazilian Civil War and then had been raised and repaired. Accompanied by the cruiser *Barroso* and the torpedo gunboat *Tiradentes* she was carrying a mission to inspect Jacarepagua Bay near Rio de Janeiro, where the Brazilian Government contemplated establishing a naval station. As she was lying in this bay with a large number of officers on board, including three Brazilian rear-admirals, at 10.45 p.m. on January 21, an explosion took place.²

The night was intensely dark. The officers on board were discussing ceremonial plans for the next day when the first-

¹ See the statement published by the Japanese Naval Attaché in Paris in the *Echo de Paris*, March 17, 1907.

² Private information and files of *The Times* and *Daily Mail*;

lieutenant said that he must get out ammunition for the salutes, and left the party to go to the magazine. A few minutes after he had gone, there was a tremendous detonation accompanied by a great column of fire and smoke. This was followed by a whole series of minor explosions which continued for four minutes after which the vessel sank. Four officers in the ward room were thrown down with great violence by the first explosion; two of them vanished for ever from the horrified eyes of their companions in a great crater of blistering flame that suddenly opened in the deck at their very feet. The two who survived struggled to portholes, through which they flung themselves, and were picked up by boats from the other ships. The *Aquidaban's* doctor, though a stout man, managed to squeeze himself through the porthole of a cabin as the explosion came, and he also was picked up and saved.

Of the three rear-admirals one, Graça, might have been rescued had he jumped overboard. His servant rushed to his cabin immediately after the explosion and begged him to throw himself into the sea. He refused, saying that there was no need for panic and that the danger was over. Almost immediately after this the ship went down carrying him with it. The servant escaped. There perished in all 223 officers and men, while 37 officers and men were rescued from the water with severe wounds or burns, in addition to 61 uninjured men. Besides Graça, Rear-Admiral R. Rocha, commanding the squadron, and Rear-Admiral C. Brazil were killed with Captain Alvis de Barros. The total number of officers and men on board was 321.

The ship was equipped with guns and ammunition of British make when she was reconstructed at Stettin after being torpedoed. It is probable that some part of her ammunition took fire spontaneously, though it is possible that carelessness was shown in getting out the ammunition for the work of saluting. The survivors could give no explanation of the disaster. All that most of them knew was that they had suddenly found themselves in the water. The *Aquidaban* was normally stationed in a hot and damp climate such as is apt to make nitro-glycerine propellants dangerous, if they are not very carefully watched. In many navies about this date there were examples of spontaneous ignition of smokeless ammunition. In the British Navy, for example, fires occurred in the magazines of the battleship *Revenge* and cruiser *Fox*, though, fortunately, without causing explosions.

In the matter of unstable explosives the French Navy was peculiarly unlucky in these years. Evidence afterwards obtained showed that a perilous laxity had prevailed in the state manufacture of smokeless explosives, for the French Army and Navy, antiquated powder being "refreshed" by treating it anew with ether or alcohol, or by mixing it with newer powder. In most navies old powder was used up or got rid of and was not allowed in the magazines of warships, and the terrible explosions which occurred in the Great War were probably due to this rule not having been strictly observed when explosives ran short.¹ In April, 1906, there was a bad premature explosion in a quick-firing gun, during practice in the French gunnery ship *Couronne*. On March 12, 1907, there was a serious disaster.

The pre-Dreadnought battleship *Iéna* that day was lying at Toulon in dry-dock when at 1.45 p.m. an explosion occurred in the after part of the ship.² The *Iéna* was a vessel of 12,050 tons, mounting four 12-inch, eight 6.4-inch, eight 3.9-inch, sixteen 3-pounder and eighteen 1-pounder guns. She had been launched in 1898 and was generally similar to the *Suffren*, which subsequently fought at the Dardanelles in the Great War. The first explosion does not appear to have been a severe one, though smoke and splinters flew out of the ship. But it was followed almost immediately by a second explosion of extraordinary violence, which shrouded the battleship, the dock, and the neighbouring part of Toulon dockyard in dense black smoke. A column of fire and smoke and splinters shot up to an enormous height. In the city of Toulon it was thought that a powder magazine had exploded. Huge pieces of metal were flung to a distance of 500 yards and human fragments were projected over a radius of 200 yards. A great fire broke out amidst the wreckage, and explosion followed explosion.

Dockyard parties were at work on the ship when the disaster took place. The workers made a rush for the gangways and the shore, at the first detonation, while many men in the dockyard ran toward the vessel to see what was happening. It was at this point that the first of the great explosions followed, and the huge fragments which it threw up killed or wounded many of the dockyard people. The sight was a terrible one; blackened and shattered men were dashing

¹ The *Natal*, for example, is believed to have had a good deal of old ammunition on board.

² See report of the French Senate Committee and *Marine Rundschau*, 1906.

wildly from the wreck with fearful burns, or falling into the empty dry dock, forty or fifty feet. The greatest courage was shown by the officers and the experienced men among the survivors of the crew. It was seen at once that the stern of the *Iéna* had been completely wrecked by the second explosion and that the fire was a most dangerous one. To deal with it was extraordinarily difficult as the ship was in dry dock. Ensign Roux volunteered to open the sluices and let in the water so that the pumps could get to work, but as he was going to the sluice valves, he was struck by fragments thrown up by one of the explosions, or by splinters of shell, and cut in two before the eyes of all. Help was at length given by the battleship *Liberté* shooting a hole in the dock gate.

The *Iéna's* commander was in his cabin when the first explosion took place, but the cabin door jammed and he could not get out. He called to some of the crew who were near to batter it open; they were unable to do so, and while they were actually at work several of them were killed and the others driven away by a fresh explosion in which the cabin was destroyed. Rear-Admiral Manceron, who was on board, took charge of the ship and fought the fires till the last living men had been removed from the tangle of steelwork. In conformity with the noble traditions of the sea, he was the last to leave the wreck, climbing out of the stern gallery as tongues of flame burst out of his cabin port holes. He was severely wounded in the jaw and ear and burnt about the face.

The total of dead was over 200, though the exact number was not known owing to the destruction of papers and books, and the character of the explosions and fires which completely destroyed all trace of some of the bodies. Sixty-eight badly wounded men were taken to hospital, and a number of slightly injured were treated outside. Several civilians were among the victims; a child was killed 400 yards away from the ship in the town, by a fragment of steel which struck her on the head. Not until twenty-four hours after the explosion had occurred were the fires put out, nor was it possible to begin the search of the ship. The fore part, from the fore turret forward, was not damaged or burnt, but astern of that everything that would burn had been destroyed. The dock was emptied and as soon as the hull cooled it was carefully examined.

The main explosion was exactly under the after turret and the officers' quarters. It blew out the bottom of the ship on the starboard side, below the armour belt and the armour

deck, for a distance of thirty feet. It carried away two of the three propeller shafts, wrenching them from their supports; it wrecked the bulkheads near the magazines so badly that, if the ship had been at sea when the disaster took place, she must have foundered. The officers', captain's, and admiral's quarters were ruins of charred furniture and twisted plates. Most of the bodies recovered from the lower compartments were fearfully burned.

The circumstances of the explosion were investigated by a committee of the French Senate. There were four possible causes: deliberate treachery on the part of some person; a short circuit producing a fire in a magazine; neglect of precaution by a working party in a magazine; and chemical deterioration of explosives leading them to take fire. The first three were dismissed on the strength of convincing evidence. The only magazine in which a man was working—he perished in the affair—was found with sides intact. It was ascertained that the explosion started in a magazine near the stern, in which ammunition for the 3.9-inch guns was stored, and that the after 12-inch turret magazine was subsequently involved.

Of the shells for this turret thirty-nine proved to have exploded in the port and starboard shell rooms. Thirteen of them were cast steel melinite shells, eighteen were powder-filled shells, and eight were armour-piercing shells with powder bursting charges. The 3.9-inch ammunition was made up in cartridges which consisted of "B powder", a smokeless nitro-cellulose powder, but had at the rear end of the cartridge close to the primer, a small quantity of black powder to "activate" the smokeless charge. Immediately over the 3.9-inch magazine was a magazine in which black powder ammunition was stored for saluting and sub-calibre work. From the neighbourhood of these magazines no living creature escaped.

The installation for cooling the 3.9-inch magazine by forcing air into it was temporarily taken away when the ship was in dock. The magazine was close to the dynamo flat where the heat was great; and the only means of ventilating it when the special installation for that purpose had been removed, was to open it to the air for an hour a day, which was dangerous, as moisture might thus be introduced into the magazine. Of the 3.9-inch ammunition involved, 86 per cent. was ascertained to have contained old powder which had previously been reported as dangerous. It was further shown that

spontaneous combustion of "B powder" had previously occurred in the French ships *Duperré*, *Charlemagne*, *Vauban*, *Descartes* and *Forbin*.

As a test, a model of the magazine and its immediate surroundings was constructed. In the model 270 rounds of ammunition, containing "B powder" with black powder near the primer, were placed; and beside this, parted from it by the metal wall was a small quantity of black powder. Arrangements were made for firing a number of 3.9-inch cartridges from either end by electricity. The first test was to fire a cartridge from the forward end, when it burnt quietly, without any explosion. Next a cartridge was fired by the rear end, where the black powder was. This was followed by a violent roar as of escaping steam from an overcharged boiler, by a great rush of flame, and by a series of heavy explosions. Fourteen minutes after the rush of flame was seen the black powder took fire.

After the *Iéna* explosion special arrangements were ordered in all navies for cooling the ammunition, and enormous quantities of old explosives were destroyed. The French Navy was dependent on the French Army for its supply of propellants and it was not able to take such drastic measures. Indeed one eminent French artilleryman proved mathematically that it was impossible for "B powder" to detonate of its own accord, though on July 28, 1907, while a quantity of this preparation was under observation, it burst into flame. What was certainly ascertained was that a mixture of black powder with "B powder" in one cartridge was extraordinarily dangerous. Yet unsafe ammunition continued in use; there were serious accidents in gunnery training from the premature explosion of ammunition on August 2, 1907, August 12, and September 22, 1908, and in early 1911, before the *Iéna* disaster was almost exactly repeated¹ in the French battleship *Liberté*.

The *Liberté* was a vessel of 14,865 tons, launched in 1905 and armed with four 12-inch and ten 7.5-inch guns, besides many smaller weapons. She formed part of the French Mediterranean Fleet and was commanded by Captain Jaurès, brother of the well-known French Socialist leader. It was alleged at the time, rightly or wrongly, that discipline on board her was lax. She was lying in Toulon Harbour on the morning of September 25, 1911, and her captain was

¹ Files of the French Press and particularly *Temps* and *Echo de Paris*; *Naval Annual*, 1912; French technical journals and *Le Yacht*.

ashore, when at 5.31 smoke was seen pouring from her forward starboard 7.5-inch casemate, followed by a great tongue of flame.

A few seconds later a rush of blue and yellow flames unaccompanied by smoke shot up to the foretop, clearly indicating to expert onlookers a fire in the magazines forward containing "B powder" and black powder ammunition for the small quick-firing guns. Then the ship was shrouded forward in dense smoke, through which men could be seen jumping from her into the water and the red glow of a serious fire could be made out. Two or three loud detonations were heard at this stage and Lieutenant Garnier, the senior officer in the *Liberté*, ordered general quarters and made the signal of distress. Boats from the numerous other warships in the French Mediterranean Fleet went to her assistance. They picked up the men in the water, many of whom were severely burned; others of the men swam back to the ship when they heard general quarters sounded and tried to get back to their action stations.

In the ship the senior officer, immediately after the first explosion and fire, gave the orders to flood the magazines, but the flooding arrangements were not sufficiently rapid or powerful, and in any case when a high gas pressure developed inside there was no means of forcing water in. Each magazine had a separate valve which needed seventeen turns after the glass protecting it had been broken. The valves were below the armour deck, in a position which was hard to reach, owing to the smoke and intense heat. The flames spread with extraordinary speed and reached the sick bay. They so terribly burned the men there that some of the bodies when recovered looked like wax dolls in the act of melting. At 5.53 a.m., when the crew were at work fighting the fire, there came an explosion far more violent than any which had taken place.

With a terrific crash, which was felt by its concussion for six miles, the main magazines forward were detonated and the whole fore part of the ship, including the foremast, was torn off and huge fragments of it projected in every direction. Great damage was caused by these fragments. The battleships *République* and *Démocratie*, which were lying near the *Liberté*, were both struck. In the *République's* side a hole several yards square was torn and fragments of steel and debris were driven inboard and started a fire, while a 7.5-inch shell dropped into the captain's cabin. In the *Démocratie*

the side was pierced and 3 men were killed and 2 wounded by splinters.

The parties in the boats in the water suffered somewhat from concussion and much more from the rain of heavy fragments and shells. The *Liberté* herself sank at once after the great explosion, and only some portions of her upper works remained above the surface; in them fires still burned. In the wreck of the ship great difficulty was experienced in rescuing those who remained alive. One man was confined in a 7.5-inch turret with ten dead bodies, and more than a day passed before he could be released. The wounds were terrible; an unfortunate seaman had his clothing and his skin blown right off him and was yet found alive. The *Verité's* surgeon had a narrow escape. He had just reached the *Liberté's* deck when the great explosion came. It tore his uniform into shreds, wrenched his sword from his belt, scorched his beard, eyelashes, and eyebrows, and flung him into the sea where he found himself hardly knowing what had happened. Except for superficial burns and some bruises he had sustained no injury.

The total casualties caused by the explosion in the *Liberté* were 143 killed or missing, and 91 wounded, many of them so severely that they could not recover. In the other ships and the boats 61 were killed or missing and 93 injured. The catastrophe was the subject of an exhaustive inquiry by a committee of experts with Rear-Admiral Gaschard as their chairman. They reported that the ship had been destroyed by the explosion of 735 7.5-inch shells (each weighing 185 pounds, for the most part charged with melinite) and of 4,600 smaller shells. They stated that the ammunition to which the explosion was attributed contained "B powder" made in 1906, before the date of the *Iéna* explosion. They found that this ammunition had spontaneously taken fire. Before their final report was made they recommended that as a protection against the instability of "B powder" no explosives should thereafter be carried which were more than four years old. Large quantities of old powder were removed from French ships and thoroughly examined, with the result that much of it was found to have greatly deteriorated, and to be so dangerous that it had to be taken out to sea and sunk in deep water. No one could after this have any serious doubt that the real cause was "B powder."

If such doubt had existed it was removed after the war when the wreck of the *Liberté* was raised so as to clear the

harbour of Toulon of the dangerous hindrance to navigation which it caused. In November, 1921, a quantity of salved ammunition from the wreck was being taken in a launch to the ordnance stores when it suddenly burst into flame, and the launch was burnt out. Her crew were able to escape as the ammunition was in the open and did not explode. In 1925 the wreck was raised and removed, without any further important discoveries being made.¹

The strict censorship imposed and the suppression of information during the Great War prevented the publication of details concerning most of the numerous disasters which occurred from ammunition explosions. They were as follows:

			Killed.
<i>Karlsruhe</i>	German light cruiser	Nov. 4, 1914	263
<i>Bulwark</i>	British battleship	Nov. 26, 1914	about 780
<i>Princess Irene</i>	British mine layer	May 27, 1915	400
<i>B. Brin</i>	Italian battleship	Sept. 27, 1915	421
<i>Natal</i>	British armoured cruiser	Dec. 31, 1915	428
<i>L. da Vinci</i> ..	Italian Dreadnought	Aug. 2, 1916	203
<i>Empress Maria</i>	Russian Dreadnought ..	Oct. 20, 1916	216
<i>Tsukuba</i>	Japanese armoured cruiser	Jan. 14, 1917	305
<i>Vanguard</i>	British Dreadnought ..	July 9, 1917	800
<i>Kawachi</i>	Japanese Dreadnought ..	July 12, 1918	500
<i>Glatton</i>	British coast defence ship	Sept. 16 1918	60

The *Bulwark* blew up at 7.50 a.m. off Sheerness. She had shipped a quantity of ammunition a day before the explosion. An officer in a steamer near her saw a spurt of flame abaft the after turret. The flash ran forward and then "everything seemed to go into the air and the ship was alight." The noise was extraordinarily violent and was in fact heard in London. Of a crew which numbered nearly 800 only fourteen survivors were rescued, and 2 of them died almost at once. A private of Marines, F. G. Budd, was at breakfast in the ship with his comrades when "he saw a flash aft. The deck seemed to give way and they fell down. When he came up from the water the first thing he did was to look round, and he saw that the ship had gone. He did not hear the explosion."² It was thought by some who witnessed the explosion that, from the character of the flash, it was caused in the beginning by defective lyddite shell. After the war,

¹ See *Engineer*, May 1, 1925, for a general account of the salvage operations.

² Report of the inquest, *Daily Mail*, November 30, 1914.

it was reported that a number of lyddite shells of batches that had been supplied for naval service in 1914, showed defects, and some were even said to have been tampered with. The official court of inquiry, however, reported in December, 1914, that the explosion was "due to accidental ignition of ammunition."

The *Princess Irene* was moored to a buoy two cables from the shore at Port Victoria, when in the words of an eye-witness, "I saw a huge flame springing up from the deck of the vessel. This was followed by a cloud of smoke. We heard a series of crackling explosions and then followed a deep explosion. A great volume of smoke and coal dust rose in the air. In a few moments this cleared away. The *Princess Irene* had disappeared. She simply melted away." No man in the minelayer escaped. One survivor was picked up unconscious, but he died shortly afterwards. Papers and signal forms, carried up by the blast of the explosion, fell ten miles away, though there was no wind, at Allington, Barming and Teston, some of them splashed with lead. In London that morning the writer heard the detonation distinctly. The death roll was heavy and exceeded 400, among the killed being 76 dockyard workers. One man was hit by a piece of metal weighing fifty pounds a quarter of a mile away, and a little girl was struck by a steel fragment in Port Victoria. Both were killed. One witness estimated the height of the flame at two miles. The ship had just left Chatham dockyard, and no indication could be discovered of the cause of the explosion. There is reason to suppose that some part of the high explosives on board had deteriorated, or that a mine was knocked or jarred.

The exact cause of the *Karlsruhe's* destruction remains uncertain, but is most probably to be attributed to defective ammunition, which had been long kept in a hot, damp, tropical climate.¹ In both the *Benedetto Brin* and *Leonardo da Vinci* evidence of treachery was obtained at the time of the explosions or fires. The *Empress Maria's* destruction was also probably the work of traitors or foreign agents.

The *Natal* blew up at a time when a large number of her crew were absent on leave or ashore, and no details of the disaster were allowed to appear. The explosion occurred in the after part of the ship, and appeared to have originated in one of the 9.2-inch magazines. Those who escaped were in

¹ Raeder, (*Kreuzerkrieg*, ii. 308) suggests that oil contaminated with petroleum may have been the cause of the explosion.

BATTLESHIPS IN ACTION

the fore part of the ship, which sank in four minutes with huge holes in her sides.¹ The *Tsukuba* blew up in Yokosuka harbour, when many of her crew were ashore, during the afternoon. She sank almost immediately. Of those who survived the disaster and were on board many were injured. Captain Arima, her commander, escaped with his life. The *Vanguard* was destroyed by an explosion of extraordinary violence late in the evening, and of the large number of men on board only 3 survived, 1 of them an officer who was so badly wounded that he died almost at once. Ninety-four officers and men were absent from her at the moment of the explosion, watching an entertainment, and to that fact they owed their lives. The ship sank with appalling speed.

The *Kawachi* sank in the Inland Sea of Japan, four minutes after a violent explosion, which killed over 500 of those on board. A large number of her crew happened to be away ashore, and these owed to that fact their escape. The British coast defence ship *Glatton* was stationed in Dover harbour when a great fire broke out in her magazines. As the fire could not be controlled or the magazines flooded, Admiral Keyes, who commanded at Dover, ordered two torpedoes to be fired at her in order to sink her before a great explosion took place which must have caused enormous damage. At the second torpedo she rolled over, carrying with her to the bottom some sixty officers and men on board. Thus a grave disaster was averted, but at the price of grievous loss. She was salvaged in 1925-6 and removed.

The list shows the grave risks which have always to be faced by ships' crews with the modern explosives. In the old days of black powder accidents of this kind were extremely rare. In proportion to the size of their navies Germany suffered least and Italy and Japan most; while England lost most ships. None of the British ships were destroyed in tropical waters or in hot climates.

Minor disasters arising from collisions and from submarines foundering or failing to return to the surface from some known or unknown defect were numerous in the later years of the period covered. But they are not so important from the technical standpoint as these ammunition explosions, though they involved tragic loss and grievous suffering for the officers and men involved in them.

¹ Schoultz, p. 61.

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* Indicates specially useful or important books.

† Abbreviations employed in the Bibliography:

R.N.=Royal Navy.

F.N.=French Navy.

F.A.=French Army.

I.J.N.=Imperial Japanese Navy.

R.I.N.=Royal Italian Navy.

I.G.N.=Imperial German Navy.

I.G.A.=Imperial German Army.

U.S.N.=United States Navy.

U.S.A.=United States Army.

I.R.N.=Imperial Russian Navy.

Note on Libraries.

The British Documents for the Great War are in the Public Record Office or Admiralty, but are not yet available. The principal libraries in London where naval books and periodicals can be obtained are the British Museum, Guildhall Library and Patent Office Library, which last has very complete sets of periodicals of technical character, including most important foreign naval periodicals. The Admiralty Library contains a most valuable collection of old and modern books but is weak on the periodical side. It is so extremely limited in space that admission to it is difficult to obtain. The War Office Library contains what is perhaps the best library of military history in England, including many valuable naval works.

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TABLES

TABLE I—UNITED STATES NAVAL ORDNANCE, 1861-5.

Name of Gun.	Description.	Weight of Gun. lbs.	Weight in lb. of		Maximum Range. Yds.
			Shot.	Shell.	
15-inch	Smooth-bore ...	42,000	440	352	2,100
11-inch	Smooth-bore ...	15,700	166	135	3,444
10-inch	Smooth-bore ...	{ 16,000	124	101	3,000
		{ 12,000			
9-inch	Smooth-bore ...	9,000	90	73	3,300
8-inch	Smooth-bore ...	{ 10,000	65	52	2,600
		{ 5,500			
64-pounder	Smooth-bore ...	10cwt.	64	52	1,660
32-pounder	Smooth-bore ...	{ 57cwt. }	32	26	2,731
		{ 27cwt. }			
8-inch	Parrot Rifle ...	...	{ 135 }	135	2,100
		...	{ 154 }		
6.4-inch	Parrot Rifle ...	...	{ 70 }	80	8,453
		...	{ 100 }	100	
5.8-inch	Parrot Rifle ...	...	60	50	...
4.2-inch	Parrot Rifle ...	...	30	29	6,700
3.6-inch	Parrot Rifle ...	...	20	18	4,400

All muzzle-loading.

TABLES

TABLE II.—UNION FLEET AT NEW ORLEANS.

	13-in. Mort.	11-in. S.B.	10-in. S.B.	9-in. S.B.	8-in. S.B.	32-pr. S.B.	100-pr. R.	80-pr. R.	50-pr. R.	30-pr. R.	20-pr. R.	Total Guns.	Howitzers.			Grand Total.	Tons
													24-pr.	12-pr.	Total		
Hartford	...	...	...	24	...	...	...	...	...	...	2	26	...	2	2	28	1900
Brooklyn	...	...	...	22	...	...	...	I	...	I	...	24	...	2	2	26	2070
Richmond	...	...	...	20	...	...	...	I	...	I	...	22	...	...	...	22	1929
Pensacola	...	...	...	20	...	...	I	...	...	...	...	23	...	2	...	25	2158
Mississippi	...	...	...	...	19	...	...	...	...	...	I	21	...	I	I	22	1692
Onelda	...	...	...	...	...	4	...	...	...	3	...	9	...	I	I	10	1032
Varuna	...	...	...	...	8	...	...	...	...	2	...	10	...	...	...	10	1300
Iroquois	...	...	...	2	...	4	I	...	I	...	...	10	...	I	I	11	1016
Cayuga	...	...	...	...	...	...	...	...	...	I	...	2	2	2	2	4	507
Itasca	...	...	...	...	...	2	...	...	...	...	I	4	...	...	...	4	507
Katabdin	...	...	...	...	...	...	...	...	...	...	I	2	2	2	2	4	507
Kennebec	...	...	...	...	...	...	...	...	...	...	I	2	2	2	2	4	507
Kineo	...	...	...	...	...	...	...	...	...	...	I	2	2	2	2	4	507
Pinola	...	...	...	...	...	...	...	...	...	...	2	3	2	2	2	5	547
Sciota	...	...	...	...	...	...	...	...	...	...	I	2	3	2	3	5	507
Winona	...	...	...	...	...	...	...	...	...	...	...	2	2	2	2	4	507
Wissahickon	...	...	...	...	...	...	...	...	...	...	I	2	2	2	2	4	507
Total Fleet	...	13	2	88	27	10	2	3	I	8	12	166	17	9	26	192	...
Mortar Division	19	I	...	9	20	46	2	I	...	I	2	101	8	I	9	110	...
	19	14	2	97	47	59	4	4	I	0	14	267	25	10	35	302	...

CONFEDERATE FORTS AND SQUADRON.

	7-in. R.	32-pr. R.	10-in. S.B.	8-in. S.B.	42-pr. S.B.	32-pr. S.B.	24-pr. S.B.	16-pr. S.B.	13-in. Mort.	10-in. Mort.	8-in. Mort.	8-in. How.	78-in. How.	24-pr. How.	2-pr. How.	Grand Total.
Ft. Jackson (Proper)	...	...	2	3	6	15	25	I	...	...	2	I	I	10	I	74
Water Battery	...	2	I	2	...	...	...	...	I	I	...	...	...	...	...	
Ft. St. Philip (Proper)	...	...	...	4	...	...	I	...	I	I	I	...	...	...	...	
Outer Batteries	...	...	...	I	6	9	20	2	...	4	...	...	...	I	...	52
	2	2	3	10	12	24	46	3	I	6	3	I	I	11	I	126

R.=Rifle. S.B.=Smooth-bore. How.=Howitzer. Mort.=Mortar.

TABLES

TABLE III.

UNION FLEET'S ATTACK ON FORT SUMTER.										CONFEDERATE FORTS OPPOSING ATTACK.									
APRIL 7TH, 1863.—DETAILS:																			
	15-in. S.B.	11-in. S.B.	150-pr R.	Shots Fired.	Times Hit.	Tons.	Thickest Armour. Inches.												
Weehawken	..	I	..	26	53	844	II	Fort Johnson	..	..	8-in. RML	8-in. S.B.	42-pr R.	32-pr S.B.	10-in. Mort	Total.			
Passaic ..	I	I	..	13	35	844	II	" Sumter..	..	..	..	..	..	..	..	I			
Montauk ..	..	I	..	27	14	844	II	" Moultrie	..	..	..	9	..	5	2	44			
Fatapasco..	..	..	I	10	47	844	II	Battery Bee	..	..	..	..	..	..	..	21			
Catskill ..	..	I	..	22	20	824	II	" Beauregard	..	..	..	I	..	..	..	6			
Nantucket	..	I	..	15	51	844	II	" Gregg	..	..	..	..	..	..	..	2			
Nahant ..	..	I	..	14	36	844	II	" Wagner	..	..	..	..	..	..	..	I			
Keokuk ..	..	..	2	3	90	677	3		..	..	..	..	..	..	..	..			
New Ironsides	..	..	2	7	65	3486	4½		..	..	..	..	..	..	..	..			
Rounds fired							385	80	86	736	140	366	343	93	2220				

TABLE IV.—UNION FLEET AT MOBILE.

	15-in. S.B.	11-in. S.B.	10-in. S.B.	9-in. S.B.	32-pr. S.B.	150-pr. R.M.L.	Single- Single- Double- Double-	100-pr. R.M.L.	60-pr. R.M.L.	50-pr. R.M.L.	30-pr. R.M.L.	20-pr. R.M.L.	Total Guns.	Tons.	Thickest Armour, Inches
Tecumseh	2	..	..	..	..	Single- turret	..	turret	Monitor	..	..	..	2	1034	10
Manhattan	2	..	..	..	..	Single- turret	..	..	Monitor	..	..	..	2	1034	10
Winnebago	..	4	..	..	..	Double- turret	..	..	Monitor	..	..	..	4	970	8½
Chickasaw	..	4	..	..	..	..	..	..	..	..	..	..	4	970	8½
Hartford	..	..	..	18	..	..	..	2	..	..	..	..	21	1900	..
Brooklyn	..	..	20	20	..	..	..	2	..	..	..	..	24	2070	..
Richmond	..	..	..	18	..	..	..	1	..	..	..	..	20	1929	..
Lackawanna	..	2	..	4	..	..	..	..	..	..	..	..	8	1533	..
Monongahela	..	2	..	..	..	..	..	..	..	..	..	..	8	1378	..
Ossipee	..	2	..	..	5	..	..	..	..	..	..	..	11	1240	..
Oneida	..	2	..	..	6	..	..	..	..	..	..	..	9	1032	..
Galea.	..	..	..	8	4	..	..	..	..	..	..	..	10	738	..
Seminole	..	1	..	..	6	..	..	..	..	..	..	..	8	801	..
Port Royal	..	..	..	..	..	..	..	..	..	..	..	..	6	805	..
Metacomet	..	..	1	2	..	..	..	1	..	2	..	..	6	974	..
Octorara	..	..	..	4	..	..	..	2	..	..	..	..	6	829	..
Itasca	..	..	..	3	2	..	..	1	..	..	..	..	5	507	..
Kennebec	..	1	..	..	2	..	..	..	..	..	..	2	5	507	..
	4	18	1	77	27	2	2	11	2	3	10	4	159		

TABLES

TABLE V.—ITALIAN FLEET AT LISSA.

	Name of Ship.	Class of Ship.	Thickest Armour	Men.	Tonnage.	Horse-power	Guns.	Name of Captain.	Shots Fired.	Details of Guns.				
										Rifled Guns, Armstrong	Smooth-Bore	16-cm.	12-cm.	17
1	<i>Re d'Italia</i> ¹	1st class Frigate	7	600	5700	800	36	Capt. Faa di Bruno	240	25-cm.	16-cm.	20-cm.	12-cm.	
2	<i>Re di Portogallo</i>	" "	7	550	5700	800	28	Capt. Riboty.....	291	2	30	4		
3	<i>Principe di Carignano</i> , F.....	2nd class	4½	440	4086	600	22	{ R.-Adm. Vacca.....	...	...	18	4		
4	<i>Maria Pia</i>	" "	4½	484	4250	700	26	Capt. lauch.....	189	...	22	4		
5	<i>Castelfidardo</i>	" "	4½	484	4250	700	27	Capt. Del Carretto..	284	...	23	4		
6	<i>Ancona</i>	" "	4½	484	4250	700	27	Capt. Cacace.....	238	...	23	4		
7	<i>San Martino</i>	" "	4½	484	4250	700	27	Capt. Piola.....	198	...	22	4		
8	<i>Affondatore</i> , F ¹	Turret Ram	5	290	4070	700	2	Capt. Roberti.....	...	2	...	...	...	
9	<i>Formidabile</i>	Central Battery	4½	356	2700	400	20	{ Adm. Persano	...	...	16	4		
10	<i>Terribile</i>	" "	4½	356	2700	400	20	Capt. Martini.....	...	...	16	4		
11	<i>Paesiro</i> ¹	Arm'd. Gun-boat	4½	250	2000	300	5	Capt. De Cosa.....	...	...	2	2	...	1
12	<i>Varsse</i>	" "	4½	250	2000	300	4	Com. Capellini.....	...	2	2	2	...	
13	Carlo Alberto... ..	1st class Frigate	None	580	3200	400	50	Com. Fincati	...	...	8	10	32	
14	Duke of Genoa	" "	"	580	3575	600	50	Com. Pucci.....	...	...	8	10	32	
15	Gaeta.....	" "	"	580	3080	450	54	Capt. Di Clavesana	...	...	8	10	32	
16	Garibaldi	" "	"	580	3680	450	54	Capt. Cerruti.....	...	...	8	12	34	
17	Maria Adelaide, F.....	" "	"	550	3459	600	32	Capt. Viragliano	...	...	10	22	34	
18	Principe Umberto	" "	"	580	3501	600	50	{ V. Adm. Albini	...	...	8	10	32	
19	Victor Emmanuel	" "	"	580	3415	500	50	Capt. Di Monale.....	...	...	8	10	32	
20	San Giovanni	Corvette	"	345	1780	220	20	Capt. Acton	...	...	6	10	14	
21	Governolo.....	" "	"	260	1700	450	10	Com. Imbert	...	...	...	10	4	
22	Guscardo	" "	"	190	1400	300	6	Com. Gogola	...	...	2	4	4	
23	Ettore Fieramosca	" "	"	190	1400	300	6	Com. Pepi	...	...	2	4	4	
24	Messagiere	Despatch Boat	"	108	1000	380	2	Com. Baldissarotto	...	...	...	...	...	2
25	Esploratore	" "	"	108	1000	350	2	Com. Giribaldi	...	...	...	...	...	2
26	Giglio.....	" "	"	26	250	60	...	Com. Oregno	...	...	...	...	...	2
27	Three Gunboats, each.....	" "	"	63	262	60	4	Lieut. De Negri.....	...	...	...	...	...	4
28	Washington	Hospital Ship.....	"	98	1400	250	2		...	...	...	...	...	...
29	Ships 30			10,572	81,422		636	Lieut. Ziccavo.....	...	...	...	...	...	...
30									...	4	6	266	130	218
														17

Also two transports, *Indipendenza* and *Piedmonte*, and two unarmed merchant steamers, *Flavio Gioja* and *Stellat d'Italia*.

¹ Ships sunk.

Armoured ships in italics.

Approximate weight of projectiles: 25-c/m., 300lb.; 20-c/m., 150lb.; 16-c/m., 100lb. Smooth-Bore: 16-c/m., 72lb.; 20-c/m., 68lb.

Rifled: 12-c/m., 30lb.; 8-c/m., 15lb. F=Flagship.

TABLE Va.—AUSTRIAN FLEET AT LISSA.

Class of Ship.	Thickest Armour Inches.	Men.	Tonnage. B'ld's Measure.	Horse Power, Nominal.	Guns.	Shots fired.	Description of Guns.				Losses.			Captain.	
							64-pr B.L. Shell	48-pr S.B.	55-pr S.B.	30-pr S.B. R.	Killed.	Severe.	Slight.		Total.
1 <i>Erzherzog Ferdinand Max</i> ...	5	489	5130	800	18	156	...	...	18	...	1	2	5	8	Rear Adm. Tegethoff.
2 <i>Habsburg</i> ...	5	478	5130	800	18	170	...	...	18	...	...	...	...	0	Capt. Baron Sterneck.
3 <i>Kaiser Maximilian</i>	4 1/2	386	3588	650	30	217	14	16	...	...	...	1	2	3	" Faber.
4 <i>Prinz Eugen</i>	4 1/2	386	3588	650	30	234	14	...	16	...	...	...	1	1	" Gröller.
5 <i>Don Juan</i>	4 1/2	386	3588	650	28	277	14	...	...	...	1	...	4	5	" Barry.
6 <i>Drache</i> ...	4 1/2	343	3065	500	26	121	16	...	10	...	1	...	5	7	" Wiplinger.
7 <i>Salamander</i>	4 1/2	343	3065	500	26	211	16	...	10	...	1	5	1	7	" Baron Moll.
8 Kaiser	None	494	5194	800	92	850	2	...	...	...	...	...	7	9	" Kern.
9 Novara	None	538	2497	500	91	342	3	...	...	...	...	...	24	38	Commodore Petz.
10 Schwarzenburg	None	547	2514	400	46	286	4	6	...	...	...	...	7	27	Capt. Klint.
11 Radetzky	None	398	2168	300	31	221	3	...	36	...	...	...	...	2	" Miosich.
12 Adria	None	398	2168	300	31	326	3	...	...	...	...	...	...	0	" Aurnhammer.
13 Donau	None	398	2168	300	31	221	3	...	24	...	...	...	...	3	" Daunthalik.
14 Archduke Frederick	None	394	2198	300	31	326	3	...	24	...	...	...	...	0	" Pittner.
15-21 Seven gunboats each	None	852-869	501-501	90	6	Total, 446	2	...	16	...	...	...	...	0	" Florio.
22-23 Two sloops each	None	139	230	22	4	Total, 33	2	...	...	...	...	...	...	0	
24 Empress Elizabeth	None	100	501	90	6	71	...	...	...	...	...	...	...	5	Capt. Oesterreicher.
25 Andreas Hofer	None	166	1470	350	6	51	1	...	...	...	1	2	2	0	Comm. Lund.
26 Greif	None	109	770	180	4	5	...	...	...	...	...	...	...	0	Comm. Kronowetter.
Ships 26.	7838	55,944	10,060	532	4456	115	26	116	269	6	38	59	79	176	

Also the unarmed merchant steamer Stadium.

Ironclads in Italics.

S.B.=Smooth-bore.

R.=Rifle.

B.L.=Breech-loader.

Also the unarmed merchant steamer Stadium.

TABLE VI.—COMPARISON OF FLEETS AT LISSA.

	Ironclads.		Wooden Ships.		Small Craft.		*Non-combatant Ships.	Total.	All Ships are Included.				Weight of Shot fired in one round.†			Loss.			
	No.	Guns.	No.	Guns.	No.	Guns.			*Ships.	Guns.	No. of Men.	Ton-nage.	Guns. Rifled.	S. B.	Rifles. lb.	Bores. lb.	Sm. Total. lb.	Killed.	Wounded.
Austria ...	7	176	7	304	9	40	4	532	7,871	57,344	121	412	7,130	16,408	23,538		38	138	176
Italy ...	12	243	11	382	3	12	8	645	10,886	86,022	276	369	28,700	24,536	53,236		620	40	660

* Including all American Hospital Ships.

* Including all Avisos, Hospital Ships, Merchant Steamers, etc.

† Excluding Austrian 12-pounder rifles, and Italian 12 and 8-c.m.

TABLES

TABLE VII.—FLEETS OF CHILE AND PERU, 1878.

CHILE.

Description.	Name of Ship.	Tonnage	Horse-Power.	Nom. Speed.	Launched. Date.	Thick. Armour.	Armament.
Cent. Batt. Battleship	Blanco Encalada...	3450	3000	13	'75	9	VI 9-in. 12 ton M., I 20-pr., I 9-pr. B., I 7-pr. B., II 1-in. Nords., I Machine.
" " "	Almirante Cochrane	3370	2920	13	'74	9	VI 9-in. 12 ton M., I 20-pr., I 9-pr. B., I 7-pr. B., I 1-in. Nord., I Machine.
Corvette	O'Higgins	1670	1100	10	'66	...	III 7-in. M., II 70-pr. M., IV 40-pr. M.
"	Chacabuco	1100	1100?	10?	...	...	III 7-in. M., II 70-pr. M., IV 40-pr. M.
"	Abtao	1050	1000	9	'64	...	III 7-in. M., III 30-pr.
Sloop	Esmeralda	850	n. 200	7	...	...	XIV 40-pr.
"	Magallanes	772	1230	11	'74	...	I 7-in. M., I 68-pr. M.
"	Covadonga	412	n. 140	8	...	...	II 70-pr. M.

Armed Merchant Steamers or Transports, Cousiño, Loa. M=Muzzle loader.

PERU.

Description.	Name of Ship.	Tonnage	Horse-Power.	Nom. Speed.	Launched. Date.	Thick. Armour.	Armament.
Coast Defence Monitor	Huascar	1130	1200	12	'65	5½	II 10-in. 12 ton M., II 40-pr. M., I 12-pr. M., I Machine.
Broadside Ironclad	Independencia	2004	2200	12	'64	4½	I 8-in. M., III 7-in. M., XII 70-pr. M., IV 30-pr.
Coast Defence Monitor	Manco Capac	1034	1300	6	Comptd. '66	10	II 15-in. 440-pr. Smooth-bores.
"	Atahualpa	1034	1300	6	Comptd. '66	10	II 15-in. 440-pr. Smooth-bores.
Corvette	Union	1500	1300	13	'64	...	XII 70-pr. [Also given as II 100-pr., and I heavy French gun.]
Gunboat	Pilcomayo	600	1080	9	'74	...	II 70-pr., IV 40-pr.

TABLES

TABLE VIII.—SHIPS WHICH TOOK PART IN THE BOMBARDMENT OF ALEXANDRIA.

Name.	Displacement.	Horse-power.	Draught of Water.	Date.	Armour.			Armament.	Crew.	System.
					Side.	Bulk-head.	Turret or Batt.			
Alexandra (1-1½" deck)	9400	8610	26' 6"	'77	14"-10"	8"	9½"-6"	II 25-ton, X 18-ton, XXX light...	670	Cent. Battery.
Inflexible (3" deck)	11,880	8010	25' 5"	'81	24"-16"	22"-14"	16"	IV 80-ton, VIII 20-pr. B., XXIII light	484	Turret.
Sultan	9200	7720	27' 6"	'71	9"-6"	6"	8"	VIII 18-ton, IV 12½-pr. B., XIX light...	400	Cent. Battery.
Superb	9170	6580	26' 2"	'80	12"-7"	10"-5"	10"	XVI 18-ton, VI 20-pr. B., XXV light	620	Cent. Battery.
Téméraire (1½"-1" deck)	8540	7520	27' 2"	'77	11"-8"	8"-5"	10" & 8"	IV 25-ton, IV 18-ton, XXXI light	534	Cent. Batt and Barbette.
Invincible	6010	4820	22' 9"	'70	8"-6"	5"	...	X 12-ton, VI 20-pr. B., XXIII light...	450	Cent. Battery.
Monarch	8320	7840	26' 6"	'69	7"-4"	5"	10"-8"	IV 25-ton, II 12-ton, I 6½-ton, X VII light	515	Turret.
Penelope	4470	4700	17' 6"	'68	6"-1-5"	4½"	...	VIII 9-ton, III 40-pr. B., II 20-pr. B., XII light	223	Broadside.
Beacon	603	510	...	'69	...	...	...	I 4½-ton, II 64-pr. B., II 20-pr. B...	75	Gunboats.
Bittern	805	850	10' 1"	'69	...	...	...	I 4½-ton, II 40-pr. B., III light...	90	
Condor	780	770	13' 3"	'76	...	...	...	I 4½-ton, II 64-pr. B., III light	100	
Cygnat	450	530	8' 6"	...	...	...	...	II 64-pr., II 20-pr. B...	60	
Decoy	440	...	...	...	...	...	...	II 64-pr., II 20-pr. B...	50	Despatch Boat.
Helicon	1000	1610	10' 5"	'65	...	...	...	II 20-pr. B...	...	

B.=Breechloader.

TABLE VIIIa.—ARMAMENT OF THE ALEXANDRIA FORTS (GUNS MOUNTED ONLY).

	Rifled.				Smooth Bore.			Mortars.				Total.	
	Muzzle-loaders.				40-pr. B.L.	6.5		20"	12"	11"	S.B. and Mortars.	Rifled.	
						15"	10"						
	10"	9"	8"	7"									
Fort Silsileh ...	...	1	1	...	...	3	...	...	1	...	4	...	6
Fort Pharos ...	...	1	3	2	2	6	31	...	4	...	41	...	49
Fort Ada... ..	...	1	3	1	...	14	...	...	5	...	19	...	24
Ras-el-Tin Lines	...	1	3	2	1	15	11	...	6	1	40	...	49
Ras-el-Tin Fort	...	1	3	2	...	5	21	...	1	2	31	...	37
Fort Saleh Aga	...	1	4	1	...	2	8	...	...	...	12	...	12
Battery	...	...	...	...	...	2	2	...	...	...	4	...	4
Fort Om-el-Kubebe	...	...	2	...	...	6	10	...	1	...	18	...	20
Fort Kamaria...	...	...	...	...	...	2	3	...	1	...	6	...	6
Fort Mex ...	...	1	1	3	...	4	5	...	3	2	14	...	19
Mex Lines	...	...	...	...	...	11	9	...	...	...	24	...	24
Fort Marsa ...	...	...	...	...	...	4	1	...	...	...	4	...	4
Fort Marabout	...	3	2	2	...	9	16	...	2	5	7	...	39
	5	18	14	4	3	84	117	1	24	9	44	249	293

TABLES

TABLE IX.—CHINESE FLEET AT THE YALU.

	Tonnage.	Inches of Armour on		Max. Trial Speed K'ts.	Date of Launch.	Where Bilt.	Torpedo Tubes.	Military Masts.	Armament. †					Projectiles over 10 lb. fired in 10 minutes.*		Captain, &c.		
		Belt.	Guns.						Deck.	12	10.2 & 9.8	8.2	5.9	5.1 & 4.7	Q.F. 4.7		Small Machine	No.
Ting Yuen	7430	14	12	3	'81	Stettin	3	2	4a	...	...	2e	...	...	12	32	10,940 lb.	{ Admiral Ting. Com. Lin-Poo-Chin. Com. Lin. Capt. Fong. Capt. Tang.
Chen Yuen	7430	14	12	3	'82	Stettin	3	2	4a	...	...	2e	...	...	12	32	10,940	Line of Battle
King Yuen	2850	9.4	7.8	3	'87	Stettin	4	1	...	...	2d	2e	...	...	13	20	3290	
Lai Yuen	2850	9.4	7.8	3	'87	Stettin	4	1	...	...	2d	2e	...	...	13	20	3290	
Tsi Yuen	2355	...	9.8	3	'83	Stettin	4	1	...	...	2d	1e	...	...	10	20	3290	
Chih Yuen	2300	...	...	3-9	'86	Elswick	4	2	...	...	3d	2e	...	...	16	25	4370	
Ching Yuen	2300	...	...	3-9	'86	Elswick	4	2	...	...	3d	2e	...	...	16	25	4370	
Tshao Yung	1350	...	...	3p	'81	Low Walker	3	...	...	2b	...	...	4f	...	7	38	4940	
Yang Wei	1350	...	...	3p	'81	Low Walker	3	...	...	2b	...	...	4f	...	7	38	4940	
Kwang Kait	1290	...	...	1?	'91?	China	4	...	...	...	...	...	1g	1h	8	65	2740	
Ping Yuen	2100	8	5	2	'90	China	4	...	...	1c	...	2	...	...	8	14	2770	
Kwang Ping	1000	...	...	1	'91	China	4	...	...	...	...	...	1g	1h	8	65	2740	
Torpedo Bts.	Fu Lung (128 tons)	...	...	15 knots sea-speed	d, III tubes,	...	4	...	...	...	...	...	15 knots sea-speed,	...	...	...	...	{ 3 tubes). III
12 Ships	35,415						44		8	5	12	15	10	2	130	394	58,620	

For Notes see Table XI.

TABLES

TABLE X.—JAPANESE FLEET AT THE YALU.

Tonnage.	Inches of Armour on		Max. Trial Speed	Date of Launch.	Where Blt.	Torpedo Tubes.	Masts.	Armament. ‡					Projectiles over 10lb. fired in 10 minutes.*		Captain, &c.	
	Belt.	Guns./Deck.						12.6	10.2	6.8, 6, & 5.9	Q.F. 6	Q.F. 4.7	Light Machine.	No.		Total Weight.
{ Matsushima ... Itsukushima ... Hashidate ... Chiyoda ... Fusoo ... Hiyei ...	4277	11.8	1.5	K'ts. 17.5	'90	La Seyne	4	1	...	...	...	...	22	303	16,470	{ V.-Admiral Ito. Capt. Omoto.
	4277	11.8	1.5	17.5	'89	La Seyne	4	1	ik	...	...	...	22	303	16,470	Capt. Yoko-o.
	4277	11.8	1.5	17.5	'91	Yokosuka	4	1	ik	...	...	...	22	303	16,470	Capt. Hidaka.
	2450	4.6	1	19.5	'89	Glasgow	3	3	...	...	...	...	17	300	13,500	Capt. Uchida.
	3718	9	8	13.2	'77	Times I.W.	...	...	...	4m	2n	...	9	22	4,700	Capt. Arai.
{ Yoshino ... Takachiho ... Naniwa ... Akitushima ... Akagi ... Saikio ...	2200	4.5	...	13	'78	Milford H.	...	...	...	...	{ 3n 6p	...	4	41	4,700	Capt. Sakurai.
	4150	...	4.5	23	'92	Elswick	5	2	...	...	4r	8s	22	290	18,000	{ R.-Adm. Tsuboi. Capt. Kawara.
	3650	...	3	18.7	'85	Elswick	4	2	2l	...	6q	...	12	38	7,000	Capt. Nomura.
	3650	...	3	18.7	'85	Elswick	4	2	2l	...	6q	...	12	33	7,000	Capt. Togo.
	3150	...	2.5	19	'92	Yokosuka	4	2	...	...	4r	6s	10	210	12,750	Capt. Kamimura.
Not in Flying Squadron.	615	...	...	12	'88	Omahama	...	...	...	...	4p	1 1/2	2	35	2,730	Com. Sakamoto.
	2913	...	...	14	Arm ed	steamer	of	Nip pon	Yuse n	Kai sha.	...	...	...	...	...	{ V.-Adm. C't. Kabayama
	39,287	...	...	...	32	14	3	4	4	27	8	59	154	1883	119,790	Comm. Kano.

For Notes see Table XI.

TABLE XI.—COMPARISON OF TWO FLEETS, EXCLUDING GUNBOATS, TORPEDO BOATS, AND VESSELS NOT BUILT FOR WAR PURPOSES.

				No. of Ships.	Average Tonnage of each Ship.	Average Age.	Average Speed.	Speed of Slowest Ship.	Armament.				Period of 10 mins. Average of Shots, Weight of.	Average Weight of each Shot.
									Over and 8 in.	6 in. and over.	Large Q.F.	Total.		
China				12	2951	8.5	Knots.	10.5	13	27	2	172	lb.	
Japan				10	3575	7.2	15.75	13	11	23	66	254	148	
							17.76					185	63	
												11,706		

* The rate of fire assumed for the various calibres of guns will be found in the last column of the tables of guns. The figures do not, of course, represent the actual number of shots fired per minute by each gun during the action, but only give some approximation to what that rate might have been, for purposes of comparison.

† The name and all the particulars of this ship are doubtful. Capt. McGiffin gives her three 6-inch and four 5-inch guns.

‡ It is not certain whether this was a quick-firer. It is counted a slow-firer. (g in Chinese table of guns.) Capt. McGiffin gives her three 4.7-inch guns.

‡ All guns breechloaders. Q.F.=Quick-firer.

Ships in italics were lost. P'=Partial deck.

CHINESE GUNS.										JAPANESE GUNS.									
Refer-ence, Letter	Calibre of Gun.	Weight of		Rate of Fire	Shots in 10 minutes.	Reference Letter.	Calibre of Gun.	Weight of Gun.	Weight of Shot	No. of Shots	Fired in 10 minutes.	Refer-ence, Letter	Calibre of Gun.	Weight of Gun.	Weight of Shot	No. of Shots	Fired in 10 minutes.		
		Gun.	Project																
a	...	...	lb.	...	...	k	...	...	...	...	...	...	...	...	...	...	...		
b	...	...	725	3	...	l	...	...	...	...	...	...	...	...	...	...	...		
c	...	35.4	400?	4	...	m	...	...	...	...	...	...	...	...	...	...	...		
d	...	26	412	4	...	n	...	...	...	...	...	...	...	...	...	...	...		
e	...	10.2	21.7	5	...	p	...	...	...	...	...	...	...	...	...	...	...		
f	...	8.2	217	10	...	q	...	...	...	...	...	...	...	...	...	...	...		
g	...	5.9	4	15	...	r	...	...	...	...	...	...	...	...	...	...	...		
h	...	5.1	3	15	...	s	...	...	...	...	...	...	...	...	...	...	...		
i	...	4.7	1.3	50	...		...	...	...	...	...	...	...	...	...	...	...		
j	...	2	45		...		...	...	...	...	...	...	...	...	...	...	...		

NOTES TO TABLES IX.-X.

* The rate of fire assumed for the various calibres of guns will be found in the last column of the tables of guns. The figures do not, of course, represent the actual number of shots fired per 10 minutes by each gun during the action, but only give some approximation to what that rate might have been, for purposes of comparison.

† The name and all the particulars of this ship are doubtful. Capt. McGiffin gives her three 6-inch and four 5-inch guns.

‡ It is not certain whether this was a quick-firer. It is counted a slow-firer. (g in Chinese table of guns.) Capt. McGiffin gives her three 4.7-inch guns.

‡ All guns breechloaders. Q.F.=Quick-firer.

Ships in italics were lost. p'=Partial deck.

TABLES

TABLE XII.—DETAILS OF JAPANESE LOSSES AT THE YALU

Name of Ship.	Crew.	Killed.		Wounded.		Died of Wounds.		Position of Ship according to her loss.
		Officers.	Men.	Officers.	Men.	Officers.	Men.	
Matsushima ...	425	2	33	5	73	1	21	1
Hiyei ...	353	3	16	3	34	0	4	2
Itsukushima ...	362	...	13	1	17	0	1	3
Akagi ...	129	2	9	2	15	0	0	4
Akitsusu ...	320	1	4	0	10	0	0	5
Fusoo ...	353	0	2	2	10	1	2	6
Yoshino ...	419	0	1	2	9	1	0	8
Hashidate ...	363	2	1	0	10	0	0	7
Saikio ...	118	0	0	1	10	1	0	9
Takachiho ...	359	0	1	0	2	0	0	10
Naniwa ...	358	0	0	0	2	0	0	11
Chiyoda ...	313	0	0	0	0	0	0	12
		10	80	16	192	4	28	
298								

TABLES

TABLE XIII.—ENGLISH HEAVY GUNS.

	Length of Bore in Calibres.	Weight of Gun in Tons.	Weight of		Muzzle Velocity. Foot-seconds.	Muzzle Energy. Foot-tons.	Perforation of Wrought Iron at Muzzle.	Energy of Gun at Muzzle per Ton of Weight. Foot-tons.
			Projectile.	Charge.				
A. Muzzle-loaders.			lb.	lb.			inches.	
7-inch ...	15.8	4½	114	22	1325	1395	7.9	310
8-inch ...	14.75	9	179	35	1390	2398	9.7	266
9-inch ...	13.9	12	256	50	1440	3681	11.4	307
10-inch ...	14.5	18	410	70	1379	5408	13.1	300
11-inch ...	13.1	25	548	85	1360	7028	14.2	281
12-inch ...	12	25	614	85	1292	7190	13.4	288
12-inch ...	13.5	35	714	140	1390	9566	15.9	273
12½-inch ...	15.84	38	818	210	1575	14,070	19.3	371
16-inch ...	18	80	1700	450	1540	27,960	24.3	350
B. Breechloaders.								
7-inch¹ ...	14.2	4½	108	11	1100	909	5	222
6-inch ...	26	5	100	48	1960	2665	12.4	533
8-inch ...	29.6	15	210	118	2150	6730	17.1	449
9.2-inch ...	31.5	22	380	166	2036	10,920	20.3	496
¹10-inch ...	45	32	500	167	2800	27,000	38	850
²12-inch ...	40	50	850	246	2650	39,200	42	786
²12-inch ...	45	59	850	258	2810	47,800	50	810
²12-inch ...	50	66	850	307	3010	53,046	51	803
²13.5-inch ...	45	76	{ 1250 & 1400	296	2700	63,190	50	831
²15-inch ...	42	96	1950	428	2655	84,070	54	875
16½-inch ...	30	110½	1800	960	2087	54,390	37.5	492

¹ Old-type screw breech.

² New type wire guns.

TABLES

TABLE XIV.—SANTIAGO

SPANISH FLEET

1.—BATTERY, ETC.				86 to				Shell } 617 100 75 45 lb. }		2.—ARMOUR, CREW, ETC.				Inches. Inches. Belt- Armour on		Inches. Shields on															
COMMANDER.								11-inch.		6-inch.				5-5-inch.				4-7-inch.				Torpedo Tubes.									
V-Admiral Cervera				INFANTA MARIA TERESA				...		2		0		10		0		8		556		6,800		20.2		'90		12 to 10		None. 10 and 3 to	
Captain Concas				VIZCAYA				...		...		2		0		10		0		8		491		6,890		20.2		'91		and 9 14 4	
Captain Eulate				ALMIRANTE OQUENDO...				...		...		2		0		10		0		8		487		6,800		20.2		'91			
Captain Lazaga				CHRISTOBAL COLON				...		...		0		10		0		6		5		567		6,840		19.8		'96		6 to 2 6 5	
Commod. de Paredes				PLUTON				...		...		0		0		0		0		2		80		400		30		'97		None. None. None.	
Captain Moreu				FUROR				...		...		0		0		0		0		2		80		370		28		'96			
Lieutenant Vasquez																															
Lieutenant Villamil																															
Lieutenant Carlier																															
								6		10		30		6		33						2261 ¹		28,000							

¹ Of whom 34 are stated to have been killed or wounded in the land and sea fighting before the battle, leaving 2,227 engaged in the battle.

TABLE XIV—continued

AMERICAN FLEET

1.—BATTERY, ETC.										2.—ARMOUR, CREW, ETC.									
Shell } lb. }		1100	850	250	100	50	33	Torpedo Tubes.		Crew.	Tonnage.	Trial Speed.	Date.	Inches. Belt-Armour		Inches. Turrets of Heavy Guns.			
		13-inch.	12-inch.	8-inch.	6-inch.	5-inch.	4-inch.							Thick.	Side.	Heavy Guns.			
Captain H. C. Taylor...	...	Indiana	...	4	0	8	4	0	0	7	571	10,230	15.5	'93	18 to 10	5	15	17	
Captain C. E. Clark ...	...	Oregon	...	4	0	8	4	0	0	7	524	10,230	16.7	'93	10				
Captain R. D. Evans...	...	Iowa	...	0	4	8	0	0	6	6	537	11,296	17.1	'96	14 to 10	5	15	15	
Captain J. W. Philip...	...	Texas	...	0	2	0	6	0	0	6	433	6,300	17.8	'92	12 to 9	None.	12	12	
Commodore W. S. Schley }	...	Brooklyn	...	0	0	8	0	12	0	5	552	9,153	22	'95	4 1/2	None.	5 1/2	8 to 4	
Captain F. A. Cook ...	...	Gloucester	...	0	0	0	0	0	0	0	—	800	18	'91	None.	None.	None.	None.	
Lieut.-Com. R. Wainwright ...	...	Vixen	...	0	0	0	0	0	0	—	93		12	—					
Lieutenant A. Sharp...	...		...	8	6	32	14	12	6	31	2,760	48,174							
IN RESERVE.																			
Rear-Admiral W. T. Sampson }	...	New York	...	0	0	6	0	0	12	3	652	8,480	21	'91	3.8	None.	10	7 and 4	
Captain F. E. Chadwick }	...	Ericsson	...	0	0	0	0	0	0	3	21	120	23	'92	None.	None.	None.	None.	
Lieutenant N. Usher...	...		...	8	6	38	14	12	18	37	3,433	56,774							

1 On the outbreak of war the peace complements were strongly reinforced. These figures are from the Surgeon-General's Report, pp. 187-8.

TABLES

TABLE XV.—MANILA

I.—AMERICAN FLEET. (COMMODORE DEWEY)

Captain.	Ship.	Date.	Tons.	Speed.	Deck.	Guns.			Men.
						8-inch.	6-inch.	5-inch Q.F.	
Commodore G. Dewey	... <i>Olympia</i> ...	... 1892	5,800	21.6	4.7	4	—	10	454
Captain C. V. Gridley	... <i>Baltimore</i> ...	... 1888	4,600	20	4.0	4	6	—	402
Captain N. M. Dyer	... <i>Petrel</i> ...	... 1888	800	13.7	.3	—	4	—	129
Commander E. P. Wood	... <i>Raleigh</i> ...	... 1892	3,183	19	2.5	—	1	10	297
Captain J. B. Coghlan	... <i>Concord</i> ...	... 1890	1,700	17.3	.3	—	6	—	187
Commander A. Walker	... <i>Boston</i> ...	... 1884	3,189	15.5	1.5	2	6	—	274
Captain F. Wildes	...	...	...	...	...	...	...	...	...
Not Engaged.	...	...	19,272	—	—	10	23	20	1,743
Captain D. B. Hodgson	... <i>McCulloch</i> ...	... 1897	1,280	16	—	—	—	4 4-in.	130
...	...	...	20,552	—	—	10	23	24	1,873

II.—SPANISH FLEET. (ADMIRAL MONTOJO)

Captain.	Ship.	Date.	Tons.	Speed.	Deck.	6.2"	5.9"	4.7"	3.4"	Men ⁶
Rear-Admiral Montojo	...	...	...	...	...	...	...	...	...	...
Captain L. Cadarso	... <i>REINA CRISTINA</i> ...	... 1887	3,090	16.9	—	6	—	—	—	409
Captain A. Algado	... <i>CASTILLA</i> ...	... 1881	3,342	14	—	—	4	2	2	401
Captain I. Sidrach	... <i>ISLA DE CUBA</i> ...	... 1886	1,040	15.9	2.5	—	—	6	—	187
Captain J. L. Human	... <i>ISLA DE LUZON</i> ...	... 1886	1,040	15.9	2.5	—	—	6	—	187
Commr. S. M. Guerra	... <i>MARQUES DEL DUERO</i> ...	... 1875	500	10	—	1	—	—	—	114
Captain E. Robion	... <i>DON ANTONIO DE ULLOA</i> ^{3 4} ...	... 1887	1,152	14	—	—	—	4	—	190
Captain J. de la Conda	... <i>DON JUAN DE AUSTRIA</i> ...	... 1887	1,152	14	—	—	—	4	—	207
...	... <i>EL CANO DE CORREO</i> ^{2 1} ...	... 1885	525	10	—	—	—	3	—	135
...	... <i>GENERAL LEZO</i> ^{2 3} ...	... 1885	525	10	—	—	—	3	—	135
Commr. F. Benavento...	... <i>VELASCO</i> ^{2 3 5} ...	... 1881	1,139	14.2	—	—	—	—	—	—
...	...	...	13,505	—	—	7	4	30	3	1,965

- ¹ Mentioned in Dewey's first, but not in his second despatch.
² By Spanish accounts not in battle.
³ Undergoing repairs.
⁴ Some guns removed to shore batteries.
⁵ All guns removed.

⁶ These are the nominal crews from official Spanish papers. The actual crews are stated by Spanish authorities only to have totalled 1,134 men.

TABLES

TABLE XVI.—10TH AUGUST, 1904.

	Tons.	Trial. Speed kts.	Date of Launch.	Crew	Broadside. including all guns to 12-pr.	Armour.		
						Heavy Guns.	Water Line.	6" G's
RUSSIANS.								
Battleships.								
Tsesarevitch F	12,900	19	1901	782	IV 12", VI 6", X 12-pr.	11"	10"	6"
Retvisan ...	12,900	18.8	1900	778	IV 12", VI 6", X 12-pr. ...	10"	9"	6"
Pobieda ...	12,690	18.0	1900	778	IV 10", V 6", X 12-pr. ...	10"	9"	6"
Peresviet F	12,670	19.1	1898	776	IV 10", V 6", X 12-pr. ...	10"	9"	6"
Sevastopol	11,842	16.8	1895	651	IV 12", VI 6" ...	10"	16"	5"
Poltava ...	10,960	16.2	1894	651	IV 12", VI 6" ...	10"	16"	5"
Cruisers								
Askold F ...	5,900	24.5	1910	573	VII 6", VI 12-pr.			
Pallada ...	6,820	19.3	1899	570	V 6", XII 12-pr.			
Diana ...	6,650	19.0	1899	570	V 6", XII 12-pr.			
Novik ...	3,080	26.0	1910	336	IV 4.7"			
JAPANESE								
1st Division								
Mikasa F ...	15,140	18.6	1900	875	IV 12", VII 6", X 12-pr.	14"	9"	6"
Asahi ...	15,200	18.0	1899	835	IV 12", VII 6", X 12-pr. ...	14"	9"	6"
Fuji ...	12,450	18.0	1896	736	IV 12", V 6", VIII 12-pr.	14"	18"	4"
Shikishima F	14,850	18.0	1898	842	IV 12", VII 6", X 12-pr. ...	14"	9"	6"
Kasuga ...	7,630	20.0	1902	609	I 10", II 8", VII 6", V 12-pr.	6"	6"	6"
Nisshin F ...	7,630	20.0	1903	609	IV 8", VII 6", V 12-pr. ...	6"	6"	6"
3rd Division								
Yakumo F	9,646	20.0	1899	639	IV 8", VI 6", VI 12-pr. ...	6"	7"	6"
Kasugi ...	4,862	23.0	1898	438	II 8", V 4.7", VI 12-pr.			
Takasago ...	4,160	24.0	1897	425	II 8", V 4.7", VI 12-pr.			
Chitose ...	4,760	23	1898	438	II 8", V 4.7", VI 12-pr.			
5th Division								
Asama ...	9,750	23	1898	637	IV 8", VII 6", VI 12-pr. ...	6"	7"	6"
Hashidate F	4,200	16	1891	409	I 12.6", V 4.7"			
Matsushima	4,200	16	1890	435	I 12.6", V 4.7"			
Chin Yen	7,350	15	1882	447	IV 12", III 6"	12.3"	14"	none
6th Division								
Akashi ...	2,750	20	1897	305	II 6", III 4.7"			
Suma ...	2,650	20	1895	304	II 6", III 4.7"			
Itsukushima	4,200	16	1889	435	I 12.6", V 4.7"			
Idzumi ...	2,950	17	1883	296	II 6", III 4.7"			

TABLE XVII.—14TH AUGUST, 1904.

RUSSIAN								
Rossia F	13,675	19.7	1896	839	II 8", VI 6", VI 12 pr. ...	2"	10"	none
Gromoboi	13,320	20.0	1899	874	II 8", VII 6", XII 12 pr. ...	6"	16"	6"
Rurik	11,690	18.8	1892	805	II 8", VIII 6", III 4.7" ...	2"	10"	none
JAPANESE.								
Idzumo F ...	9,750	21	1899	722	IV 8", VII 6", VI 12-pr. }	For armour see Table		
Adzuma ...	9,300	20	1899	644	IV 8", VI 6", VI 12-pr. }			
Tokiwa ...	9,750	22	1898	642	IV 8", VII 6", VI 12-pr. }			
Iwate F ...	9,750	21	1910	688	IV 8", VII 6", VI 12-pr. }			
Naniwa ...	3,650	18	1885	338	V 6"			
Takachiho	3,650	18	1885	342	V 6"			

F=flagship.

TABLES

TABLE XVIII.—TSUSHIMA.

RUSSIANS.	Tons.	Trial. Speed.	Date of launch	Crew.	Broadside.
1st Division (V.-Adm. Rojestvensky).					
Kniaz Suvaroff, F Emp. Alexander III Borodino ... Orel ...	each 13,510	17.5	{ 1902 1901 1901 1902 }	each 830	IV 12", VI 6", X 12-pr.
2nd Division. (R.-Adm. Fölkersam).					
Oslabia, F ...	12,675	18.0	1898	900	IV 10", V 6", X 12-pr.
Sissoi Veliki ...	10,400	15.7	1894	586	IV 12", III 6".
Navarin ...	10,200	15.9	1891	622	IV 12", IV 6".
Adm. Nakhimoff ...	8,500	16.6	1885	572	VI 8", V 6".
3rd Division (R.-Adm. Nebogatoff).					
Nicholas I, F ...	9,670	14.0	1889	623	II 12", II 9", IV 6".
Gen.-Adm. Apraxin ...	4,120	16.0	1896	404	III 10", II 4.7".
Adm. Seniavin ...	4,960	16.0	1894	404	IV 10", II 4.7".
Adm. Oushakoff ...	4,120	16.0	1893	404	IV 10", II 4.7".
Cruisers (R.-Adm. Enquist).					
Oleg, F ...	6,645	23.0	1903	580	VIII 6", VI 12-pr.
Aurora ...	6,730	20.0	1900	570	V 6".
Dmitri Donskoi ...	6,200	17.0	1883	503	III 6", V 4.7".
Vladimir Monomakh ...	5,590	17.5	1882	493	II 6", IV 4.7".
Svietlana ...	3,730	20.0	1896	402	IV 6".
Almaz ...	3,285	19.0	1903	336	III 12-pr.
Izumrud ...	3,100	24.0	1903	336	IV 4.7".
Jemtchug ...	3,100	24.0	1903	336	IV 4.7".
Ural... ..	13,600	20.0	1890	490	(Auxiliary cruiser carrying VIII 4.7" and VIII 12-pr.)
9 destroyers, each 350 tons, launched 1901-4, 26 knots, III 18 torpedo tubes, 62 crew, I 12-pr. and V 3-pr.					
JAPANESE.					
1st Division (Adm. Togo).					
Mikasa, F ...	15,140	18.6	1900	875	Each IV 12", VII 6", X 12-pr.
Shikishima ...	14,850	18.0	1898	812	
Fuji ...	12,450	18.0	1896	736	
Asahi ...	15,200	18.0	1899	835	
Kasuga ...	7,630	20.0	1902	609	I 10", II 8", VII 6", V 12-pr.
Nisshin, F ...	7,630	20.0	1903	609	IV 8", VII 6", V 12-pr.
2nd Division (V.-Adm. Kamimura).					
Idzumo, F ...	9,750	21.0	1899	722	IV 8", VII 6", VI 12-pr.
Adzuma ...	9,300	20.0	1899	644	IV 8", VI 6", VI 12-pr.
Tokiwa ...	9,750	22.0	1898	642	IV 8", VII 6", VI 12-pr.
Yakumo ...	9,646	20.0	1899	639	IV 8", VI 6", VI 12-pr.
Asama ...	9,750	23.0	1898	637	IV 8", VII 6", VI 12-pr.
Iwate, F ...	9,750	21.0	1900	688	IV 8", VII 6", VI 12-pr.
3rd Division (V.-Adm. Dewa).					
Kasagi, F ...	4,862	23.0	1898	438	II 8", V 4.7", VI 12-pr.
Chitose ...	4,760	23.0	1898	438	II 8", V 4.7", VI 12-pr.
Otawa ...	3,010	21.0	1903	312?	II 6", III 4.7".
Niitaka ...	3,366	20.0	1902	320	IV 6", V 12-pr.
4th Division. (V.-Adm. Uriu).					
Naniwa, F ...	3,650	18.0	1885	338	V 6".
Takachiho ...	3,650	18.6	1885	342	V 6".
Akashi ...	2,750	20.0	1897	305	II 6", III 4.7".
Tsushima ...	3,365	20.0	1902	320	IV 6", V 12-pr.
5th Division (V.-Adm. Kataoka).					
Itsukushima, F ...	4,200	16.0	1889	435	I 12.6", V 4.7".
Chinyen ...	7,350	15.0	1882	447	IV 12", III 6".
Matsushima ...	4,200	16.0	1890	435	I 12.6", V 4.7".
Hashidate, F... ..	4,200	16.0	1891	409	I 12.6", V 4.7".

TABLES

TABLE XVIII.—TSUSHIMA—*continued*

JAPANESE— <i>contd.</i>	Tons.	Trial Speed.	Date of launch.	Crew.	Broadside.
6th Division (R.-Adm. Togo, the younger).					
Suma F	2,650	20.0	1895	304	II 6", III 4.7".
Chiyoda	2,450	19.0	1890	316	VI 4.7".
Akitsushima	3,126	19.0	1892	309	II 6", IV 4.7".
Idzumi	2,950	17.0	1883	296	II 6", III 4.7".
21 destroyers, each 280-380 tons (except Akatsuki captured from Russia, 240 tons), 27½-31 knots, II 18-in. torpedo tubes, IV torpedoes, crews 51-61, armed, II 12-pr. and IV 6-pr. 17 1st class torpedo boats, 120-180 tons, 20 to 29 knots, III 14-in. torpedo tubes, 20 to 26 men, 40 2nd class torpedo boats, 80-110 tons, 17 to 27 knots, III 14-in. torpedo tubes, 16 to 20 men.					
Despatch Boats.					
Chihaya	1,238	21	—	—	V torpedo tubes.
Yaeyama	1,584	20	—	—	II torpedo tubes.
F=Flagship.					

TABLES

TABLE XIX.—ARMOUR OF SHIPS IN LINE AT TSUSHIMA.

		Gun Armour.		Water Line Armour.					Deck in.
		Heavy gun Turrets in.	Medium guns (6")	Thick Belt in.	Width of Thick Belt ft.	Thin Belt in.	Width of Thin Belt ft.	Ends of Ship in.	
RUSSIAN.									
Suvaroff ...	}	10"	6-4"	7½ to 7"	6½ ft.	7"	5½ ft.	4"	3-1"
Borodino ...									
Alexander III Orel ...									
Osliabia ...		10"	5"	9 to 6"	7½ ft.	5"	6 ft.	4"	2½-1"
Sissoi Veliki ...		12-10"	5"	16 to 10"	7 ft.	5"	6 ft. ?	None	3"
Navarin ...		12"	5"	16 to 12"	7 ft.	10"	5 ft.	None	3"
Nicholas I		10-8"	None	14 to 10"	8 ft.	None	None	6"	3"
Oushakoff	}	8"	None	10 to 8"	6 ft.	None	None	None	3"
Seniavin									
Apraxin									
Nakhimoff ...		8"	None	8"	7 ft.	None	None	6"	3"
JAPANESE.									
Mikasa ...		14-10"	6"	9"	7½ ft.	6"	12 ft.	4"	3-1"
Asaki	}	14-10"	6"	9"	8 ft.	6"	6 ft.	4"	3-1"
Shikishima									
Fuji ...		14-10"	6"	18-14"	7½ ft.	4"	6 ft.	None	2½"
Nisshin	}	6-3"	5½"	6"	6 ft.	6"	6 ft.	4-3"	1½"
Kasuga									
Idzumo		6"	6"	7"	7 ft.	5"	7 ft.	3½"	2½"
Iwate									
Asama		6"	6"	7"	7 ft.	5"	7 ft.	3½"	2½"
Tokiwa									
Adzuma	}	6"	6"	7"	7 ft.	5"	7 ft.	3½"	2½"
Yakumo									

CHIEF GUNS EMPLOYED.

RUSSIAN.					JAPANESE.				
Calibre.	Length in Calibres.	Tons	Weight of Projectile lb.	Initial Velocity Ft. Secs.	Calibres.	Length in Calibres.	Tons.	Wght of Projectile lb.	Initial Velocity Ft. Secs.
12-in.	40	59	724	2600	12-in.	40	49	850	2420
10-in.	45	32	490	2500	10-in.	45	32	500	2710
9-in.	45	26	403	2500	8-in.	40	15	250	2580
8-in.	45	15	188	2800	6-in.	40	6½	100	2500
6-in.	45	7	89	2600	4.7-in.	40	2	45	2150
4.7-in.	45	2	46	2600	—	—	—	—	—

APR 9 1979
OCT 1 1981
OCT 1 1981
DEC 15 1981
MAY 15 1982
MAR 18 1985
rec'd Mar 5/85

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